



Sequence Listing

<110> Mount, David B.
Delpire, Eric
Gamba, Gerardo
Alfred L. George, Jr.

<120> PURIFIED AND ISOLATED POTASSIUM-CHLORIDE COTRANSPORTER NUCLEIC ACIDS
AND POLYPEPTIDES AND THERAPEUTIC AND SCREENING METHODS USING SAME

<130> Attorney Docket No. 1242-26-2

<140> US/09/835,976A

<141> 2001-04-16

<160> 131

<170> PatentIn Ver. 2.1

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gag ggc ccc gag ccc gag cgc ccc agc ccg gga gat gga aat cca aga 145
Glu Gly Pro Glu Pro Glu Arg Pro Ser Pro Gly Asp Gly Asn Pro Arg
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gaa aac agc cca ttc ntc aac aat gtc gag gtg gaa caa gag agc ttc 193
Glu Asn Ser Pro Phe Xaa Asn Asn Val Glu Val Glu Gln Glu Ser Phe
50 55 60

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Phe Glu Gly Lys Asn Met Ala Leu Phe Glu Glu Glu Met Asp Ser Asn	
65 70 75	
ccc atg gtg tcc tcg ctg ntc aac aag ctg gcc aac tac acc aac ctg	289
Pro Met Val Ser Ser Leu Xaa Asn Lys Leu Ala Asn Tyr Thr Asn Leu	
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agc cag ggc gtg gtg gag cac gag gag gac gag gag agc cgg cgg cgg	337
Ser Gln Gly Val Val Glu His Glu Glu Asp Glu Glu Ser Arg Arg Arg	
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gag gcc aag gct ccg cgc atg ggc acc ttc atc ggc gtc tac ctg ccg	385
Glu Ala Lys Ala Pro Arg Met Gly Thr Phe Ile Gly Val Tyr Leu Pro	
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Cys Leu Gln Asn Ile Leu Gly Val Ile Leu Phe Leu Arg Leu Thr Trp	
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Ile Val Gly Val Ala Gly Val Leu Glu Ser Phe Leu Ile Val Ala Met	
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Cys Cys Thr Cys Thr Met Leu Thr Ala Ile Ser Met Ser Ala Ile Ala	
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Gly Thr Thr Phe Ala Gly Ala Met Tyr Ile Leu Gly Thr Ile Glu Ile	
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Phe Leu Thr Tyr Ile Ser Pro Gly Ala Ala Ile Phe Gln Ala Glu Ala	
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Ala Gly Gly Glu Ala Ala Ala Met Leu His Asn Met Arg Val Tyr Gly	
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Thr Cys Thr Leu Val Leu Met Ala Leu Val Val Phe Val Gly Val Lys	
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Tyr Val Asn Lys Leu Ala Leu Val Phe Leu Ala Cys Val Val Leu Ser	
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Ile Leu Ala Ile Tyr Ala Gly Val Ile Lys Ser Ala Phe Asp Pro Pro	
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Phe Asp Ala Cys Val Lys Ala Tyr Gly Ile His Asn Asn Ser Ala Thr	
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Ala His Ala Gly Ala Phe Val Glu Lys Lys Gly Val Pro Ser Val Pro	
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Val Ala Glu Glu Ser Arg Ala Ser Thr Leu Pro Tyr Val Leu Thr Asp	
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Ile Ala Ala Ser Phe Thr Leu Leu Val Gly Ile Tyr Phe Pro Ser Val	
420 425 430	
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Thr Gly Ile Met Ala Gly Ser Asn Arg Ser Gly Asp Leu Lys Asp Ala	
435 440 445	
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Gln Lys Ser Ile Pro Thr Gly Thr Ile Leu Ala Ile Val Thr Thr Ser	
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Phe Ile Tyr Leu Ser Cys Ile Val Leu Phe Gly Ala Cys Ile Glu Gly	
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Val Val Leu Arg Asp Lys Phe Gly Glu Ala Leu Gln Gly Asn Leu Val	
480 485 490 495	
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Ile Gly Met Leu Ala Trp Pro Ser Pro Trp Val Ile Val Ile Gly Ser	
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Arg Leu Leu Gln Ala Ile Ala Arg Asp Gly Ile Val Pro Phe Leu Gln	
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Val Phe Gly His Gly Lys Ala Asn Gly Glu Pro Thr Trp Ala Leu Leu	
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Leu Thr Val Leu Ile Cys Glu Thr Gly Ile Leu Ile Ala Ser Leu Asp	
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Ser Val Ala Pro Ile Leu Ser Met Phe Phe Leu Met Cys Tyr Leu Phe	
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Val Asn Leu Ala Cys Ala Val Gln Thr Leu Leu Arg Thr Pro Asn Trp	
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Arg Pro Arg Phe Lys Phe Tyr His Trp Thr Leu Ser Phe Leu Gly Met	
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Ser Leu Cys Leu Ala Leu Met Phe Ile Cys Ser Trp Tyr Tyr Ala Leu	
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Ser Ala Met Leu Ile Ala Gly Cys Ile Tyr Lys Tyr Ile Glu Tyr Arg	
640 645 650 655	
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 Asn Ser Pro Phe Xaa Asn Asn Val Glu Val Glu Gln Glu Ser Phe Phe
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 Glu Gly Lys Asn Met Ala Leu Phe Glu Glu Glu Met Asp Ser Asn Pro
 65 70 75 80
 Met Val Ser Ser Leu Xaa Asn Lys Leu Ala Asn Tyr Thr Asn Leu Ser
 85 90 95

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Leu	Gln	Asn	Ile	Leu	Gly	Val	Ile	Leu	Phe	Leu	Arg	Leu	Thr	Trp	Ile	130	135	140
Val	Gly	Val	Ala	Gly	Val	Leu	Glu	Ser	Phe	Leu	Ile	Val	Ala	Met	Cys	145	150	155
Cys	Thr	Cys	Thr	Met	Leu	Thr	Ala	Ile	Ser	Met	Ser	Ala	Ile	Ala	Thr	165	170	175
Asn	Gly	Val	Val	Pro	Ala	Gly	Gly	Ser	Tyr	Tyr	Met	Ile	Ser	Arg	Ser	180	185	190
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Thr	Thr	Phe	Ala	Gly	Ala	Met	Tyr	Ile	Leu	Gly	Thr	Ile	Glu	Ile	Phe	210	215	220
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Cys	Thr	Leu	Val	Leu	Met	Ala	Leu	Val	Val	Phe	Val	Gly	Val	Lys	Tyr	260	265	270
Val	Asn	Lys	Leu	Ala	Leu	Val	Phe	Leu	Ala	Cys	Val	Val	Leu	Ser	Ile	275	280	285
Leu	Ala	Ile	Tyr	Ala	Gly	Val	Ile	Lys	Ser	Ala	Phe	Asp	Pro	Pro	Asp	290	295	300
Ile	Pro	Val	Cys	Leu	Leu	Gly	Asn	Arg	Thr	Leu	Ser	Arg	Arg	Ser	Phe	305	310	315
Asp	Ala	Cys	Val	Lys	Ala	Tyr	Gly	Ile	His	Asn	Asn	Ser	Ala	Thr	Ser	325	330	335
Ala	Leu	Trp	Gly	Leu	Phe	Cys	Asn	Gly	Ser	Gln	Pro	Ser	Ala	Ala	Cys	340	345	350
Asp	Glu	Tyr	Phe	Ile	Gln	Asn	Asn	Val	Thr	Glu	Ile	Gln	Gly	Ile	Pro	355	360	365
Gly	Ala	Ala	Ser	Gly	Val	Phe	Leu	Glu	Asn	Leu	Trp	Ser	Thr	Tyr	Ala	370	375	380
His	Ala	Gly	Ala	Phe	Val	Glu	Lys	Lys	Gly	Val	Pro	Ser	Val	Pro	Val	385	390	395
Ala	Glu	Glu	Ser	Arg	Ala	Ser	Thr	Leu	Pro	Tyr	Val	Leu	Thr	Asp	Ile	405	410	415

Ala	Ala	Ser	Phe	Thr	Leu	Leu	Val	Gly	Ile	Tyr	Phe	Pro	Ser	Val	Thr	420	425	430
Gly	Ile	Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	Ala	Gln	435	440	445
Lys	Ser	Ile	Pro	Thr	Gly	Thr	Ile	Leu	Ala	Ile	Val	Thr	Thr	Ser	Phe	450	455	460
Ile	Tyr	Leu	Ser	Cys	Ile	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	Gly	Val	465	470	475 480
Val	Leu	Arg	Asp	Lys	Phe	Gly	Glu	Ala	Leu	Gln	Gly	Asn	Leu	Val	Ile	485	490	495
Gly	Met	Leu	Ala	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	Phe	500	505	510
Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Thr	Leu	Thr	Gly	Ala	Pro	Arg	515	520	525
Leu	Leu	Gln	Ala	Ile	Ala	Arg	Asp	Gly	Ile	Val	Pro	Phe	Leu	Gln	Val	530	535	540
Phe	Gly	His	Gly	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	Leu	545	550	555 560
Thr	Val	Leu	Ile	Cys	Glu	Thr	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	Ser	565	570	575
Val	Ala	Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	Phe	Val	580	585	590
Asn	Leu	Ala	Cys	Ala	Val	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	Arg	595	600	605
Pro	Arg	Phe	Lys	Phe	Tyr	His	Trp	Thr	Leu	Ser	Phe	Leu	Gly	Met	Ser	610	615	620
Leu	Cys	Leu	Ala	Leu	Met	Phe	Ile	Cys	Ser	Trp	Tyr	Tyr	Ala	Leu	Ser	625	630	635 640
Ala	Met	Leu	Ile	Ala	Gly	Cys	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	Arg	Gly	645	650	655
Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Asn	Ala	660	665	670
Ala	Arg	Tyr	Ala	Leu	Leu	Arg	Val	Glu	His	Gly	Pro	Pro	His	Thr	Lys	675	680	685
Asn	Trp	Arg	Pro	Gln	Val	Leu	Val	Met	Leu	Asn	Leu	Asp	Ala	Glu	Gln	690	695	700
Ala	Val	Lys	His	Pro	Arg	Leu	Leu	Ser	Phe	Thr	Ser	Gln	Leu	Lys	Ala	705	710	715 720
Gly	Lys	Gly	Leu	Thr	Ile	Val	Gly	Ser	Val	Leu	Glu	Gly	Thr	Tyr	Leu	725	730	735

Asp	Lys	His	Met	Glu	Ala	Gln	Arg	Ala	Glu	Glu	Asn	Ile	Arg	Ser	Leu	740	745	750	
Met	Ser	Thr	Glu	Lys	Thr	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	Ser	Ser	755	760	765	
Ser	Leu	Arg	Asp	Gly	Met	Ser	His	Leu	Ile	Gln	Ser	Ala	Gly	Leu	Gly	770	775	780	
Gly	Leu	Lys	His	Asn	Thr	Val	Leu	Met	Ala	Trp	Pro	Ala	Ser	Trp	Lys	785	790	795	800
Gln	Glu	Asp	Asn	Pro	Phe	Ser	Trp	Lys	Asn	Phe	Val	Asp	Thr	Val	Arg	805	810	815	
Asp	Thr	Thr	Ala	Ala	His	Gln	Ala	Leu	Leu	Val	Ala	Lys	Asn	Val	Asp	820	825	830	
Ser	Phe	Pro	Gln	Asn	Gln	Glu	Arg	Phe	Gly	Gly	Gly	His	Ile	Asp	Val	835	840	845	
Trp	Trp	Ile	Val	His	Asp	Gly	Gly	Met	Leu	Met	Leu	Leu	Pro	Phe	Leu	850	855	860	
Leu	Arg	Gln	His	Lys	Val	Trp	Arg	Lys	Cys	Arg	Met	Arg	Ile	Phe	Thr	865	870	875	880
Val	Ala	Gln	Val	Asp	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	Leu	Gln	885	890	895	
Met	Phe	Leu	Tyr	His	Leu	Arg	Ile	Ser	Ala	Glu	Val	Glu	Val	Val	Glu	900	905	910	
Met	Val	Glu	Asn	Asp	Ile	Ser	Ala	Phe	Thr	Tyr	Glu	Arg	Thr	Leu	Met	915	920	925	
Met	Glu	Gln	Arg	Ser	Gln	Met	Leu	Lys	Gln	Met	Gln	Leu	Ser	Lys	Asn	930	935	940	
Glu	Gln	Glu	Arg	Glu	Ala	Gln	Leu	Ile	His	Asp	Arg	Asn	Thr	Ala	Ser	945	950	955	960
His	Thr	Ala	Ala	Ala	Ala	Arg	Thr	Gln	Ala	Pro	Pro	Thr	Pro	Asp	Lys	965	970	975	
Val	Gln	Met	Thr	Trp	Thr	Arg	Glu	Lys	Leu	Ile	Ala	Glu	Lys	Tyr	Arg	980	985	990	
Ser	Arg	Asp	Thr	Ser	Leu	Ser	Gly	Phe	Lys	Asp	Leu	Phe	Ser	Met	Lys	995	1000	1005	
Pro	Asp	Gln	Ser	Asn	Val	Arg	Arg	Met	His	Thr	Ala	Val	Lys	Leu	Asn	1010	1015	1020	
Gly	Val	Val	Xaa	Asn	Lys	Ser	Gln	Asp	Ala	Gln	Leu	Val	Leu	Leu	Asn	1025	1030	1035	1040
Met	Pro	Gly	Pro	Pro	Lys	Asn	Arg	Gln	Gly	Asp	Glu	Asn	Tyr	Met	Glu	1045	1050	1055	

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 tttgcgaggt tccccccact ttttttgttc ttaaaaagaa caaa atg cat cct cca 176
 Met His Pro Pro
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gaa acc acc acc aag atg gct tca gtt cgg ttc atg gtg aca ccg aca 224
 Glu Thr Thr Thr Lys Met Ala Ser Val Arg Phe Met Val Thr Pro Thr
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aag atc gat gac att cca ggt ttg tca gac acc agt ccg gac ntc agc 272
 Lys Ile Asp Asp Ile Pro Gly Leu Ser Asp Thr Ser Pro Asp Xaa Ser
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tct cga tct agt tcc cga gta aga ttt agc tcc cgg gaa agc gtg cct 320
 Ser Arg Ser Ser Ser Arg Val Arg Phe Ser Ser Arg Glu Ser Val Pro
 40 45 50

gaa aca agc cgg agt gag cct atg agt gag atg tct ggg gcc acc act 368
 Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Met Ser Gly Ala Thr Thr
 55 60 65

tcg ctg gca act gtt gca ctg gat cca ccc agt gac cgg act tct cac 416
 Ser Leu Ala Thr Val Ala Leu Asp Pro Pro Ser Asp Arg Thr Ser His
 70 75 80

ccc	cag	gat	gtc	atc	gag	gac	gac	gga	cat	aag	aaa	gct	cga	aat	gct	464
Pro	Gln	Asp	Val	Ile	Glu	Asp	Asp	Gly	His	Lys	Lys	Ala	Arg	Asn	Ala	
85					90					95					100	
tat	ctc	aat	aat	tcc	aat	tat	gaa	gaa	gga	gat	gaa	tat	ttt	gat	aaa	512
Tyr	Leu	Asn	Asn	Ser	Asn	Tyr	Glu	Glu	Gly	Asp	Glu	Tyr	Phe	Asp	Lys	
				105					110					115		
aat	ttg	gca	ctc	ttt	gag	gaa	gaa	atg	gac	acc	aga	ccg	aag	gtg	tct	560
Asn	Leu	Ala	Leu	Phe	Glu	Glu	Glu	Met	Asp	Thr	Arg	Pro	Lys	Val	Ser	
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tcc	ctc	ctc	aac	cgc	atg	gcc	aat	tac	act	aat	ctg	act	caa	gga	gca	608
Ser	Leu	Leu	Asn	Arg	Met	Ala	Asn	Tyr	Thr	Asn	Leu	Thr	Gln	Gly	Ala	
			135					140					145			
aag	gaa	cat	gaa	gag	gca	gaa	aac	atc	act	gaa	ggg	aaa	aag	aag	ccc	656
Lys	Glu	His	Glu	Glu	Ala	Glu	Asn	Ile	Thr	Glu	Gly	Lys	Lys	Lys	Pro	
	150						155				160					
acc	aag	acc	ccc	caa	atg	ggg	acc	ttc	atg	ggg	gtc	tac	ctc	cca	tgt	704
Thr	Lys	Thr	Pro	Gln	Met	Gly	Thr	Phe	Met	Gly	Val	Tyr	Leu	Pro	Cys	
	165				170					175					180	
cta	caa	aat	att	ttt	gga	gtg	atc	ctt	ttt	tta	cgc	ctt	aca	tgg	gtg	752
Leu	Gln	Asn	Ile	Phe	Gly	Val	Ile	Leu	Phe	Leu	Arg	Leu	Thr	Trp	Val	
				185					190					195		
gtg	ggc	aca	gct	gga	gtt	ctt	cag	gct	ttt	gca	att	gtc	ctt	atc	tgc	800
Val	Gly	Thr	Ala	Gly	Val	Leu	Gln	Ala	Phe	Ala	Ile	Val	Leu	Ile	Cys	
			200					205					210			
tgc	tgc	tgt	aca	atg	ttg	act	gct	atc	tcc	atg	agt	gcc	att	gcc	act	848
Cys	Cys	Cys	Thr	Met	Leu	Thr	Ala	Ile	Ser	Met	Ser	Ala	Ile	Ala	Thr	
			215				220					225				
aat	gga	gtg	gtg	cca	gct	ggg	ggc	tca	tac	ttt	atg	att	tcc	cgg	gca	896
Asn	Gly	Val	Val	Pro	Ala	Gly	Gly	Ser	Tyr	Phe	Met	Ile	Ser	Arg	Ala	
	230						235				240					
ctg	ggc	cca	gag	ttt	ggg	ggg	gct	gtt	ggc	ctc	tgc	ttt	tat	ctt	ggg	944
Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys	Phe	Tyr	Leu	Gly	
	245				250				255					260		
acc	aca	ttt	gca	gca	gcc	atg	tac	atc	ctt	ggg	gcc	att	gaa	atc	ttt	992
Thr	Thr	Phe	Ala	Ala	Ala	Met	Tyr	Ile	Leu	Gly	Ala	Ile	Glu	Ile	Phe	
			265					270						275		
ctg	gtc	tat	atc	gtc	ccc	cga	gct	gcc	atc	ttt	cac	agt	gat	gac	gca	1040
Leu	Val	Tyr	Ile	Val	Pro	Arg	Ala	Ala	Ile	Phe	His	Ser	Asp	Asp	Ala	
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ctc	aag	gaa	tca	gca	gcc	atg	cta	aat	aac	atg	cgt	gtc	tac	ggc	aca	1088
Leu	Lys	Glu	Ser	Ala	Ala	Met	Leu	Asn	Asn	Met	Arg	Val	Tyr	Gly	Thr	
		295					300					305				
gct	ttc	ttg	gtc	ctt	atg	gta	tta	gtg	gta	ttt	atc	ggc	gta	cgc	tat	1136
Ala	Phe	Leu	Val	Leu	Met	Val	Leu	Val	Val	Phe	Ile	Gly	Val	Arg	Tyr	
	310					315					320					

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Val Asn Lys Phe Ala Ser Leu Phe Leu Ala Cys Val Ile Val Ser Ile	
325 330 335 340	
ttg gcc atc tat gct gga gcc atc aag tct tct ttt gct cct cca cac	1232
Leu Ala Ile Tyr Ala Gly Ala Ile Lys Ser Ser Phe Ala Pro Pro His	
345 350 355	
ttc ccg gtc tgc atg ctg ggt aac cgc act ctt tca tca aga cac att	1280
Phe Pro Val Cys Met Leu Gly Asn Arg Thr Leu Ser Ser Arg His Ile	
360 365 370	
gac gtt tgc tct aag acc aag gaa att aac aac atg aca gtc cca tca	1328
Asp Val Cys Ser Lys Thr Lys Glu Ile Asn Asn Met Thr Val Pro Ser	
375 380 385	
aag tta tgg gga ttc ttc tgt aac tcg agt caa ttt ttc aat gcc acc	1376
Lys Leu Trp Gly Phe Phe Cys Asn Ser Ser Gln Phe Phe Asn Ala Thr	
390 395 400	
tgt gat gaa tac ttt gtt cac aat aac gtc act tca atc cag ggc att	1424
Cys Asp Glu Tyr Phe Val His Asn Asn Val Thr Ser Ile Gln Gly Ile	
405 410 415 420	
cct gga ttg gct agt ggt ata att aca gag aat ctt tgg agt aat tac	1472
Pro Gly Leu Ala Ser Gly Ile Ile Thr Glu Asn Leu Trp Ser Asn Tyr	
425 430 435	
cta ccc aag gga gag atc atc gaa aag cct tca gcc aaa tct tct gat	1520
Leu Pro Lys Gly Glu Ile Ile Glu Lys Pro Ser Ala Lys Ser Ser Asp	
440 445 450	
gtc tta ggc agc tta aac cat gaa tat gtt ctt gtt gac atc acc acc	1568
Val Leu Gly Ser Leu Asn His Glu Tyr Val Leu Val Asp Ile Thr Thr	
455 460 465	
tcc ttc acg ntt ctg gtg gga atc ttc ttt ccc tct gtt aca ggt atc	1616
Ser Phe Thr Xaa Leu Val Gly Ile Phe Phe Pro Ser Val Thr Gly Ile	
470 475 480	
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Met Ala Gly Ser Asn Arg Ser Gly Asp Leu Lys Asp Ala Gln Lys Ser	
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att ccg att ggt act atc ctt gcc atc ctg acc acc tcc ttt gtt tat	1712
Ile Pro Ile Gly Thr Ile Leu Ala Ile Leu Thr Thr Ser Phe Val Tyr	
505 510 515	
tta agc aat gtt gtc ctt ttt ggt gca tgt att gaa ggg gtt gtt ctc	1760
Leu Ser Asn Val Val Leu Phe Gly Ala Cys Ile Glu Gly Val Val Leu	
520 525 530	
aga gac aag ttc ggt gat gct gtg aaa ggt aat ttg gtg gta ggc acc	1808
Arg Asp Lys Phe Gly Asp Ala Val Lys Gly Asn Leu Val Val Gly Thr	
535 540 545	
tta tct tgg cca tcc cca tgg gtg att gtt att ggc tcc ttc ttt tca	1856
Leu Ser Trp Pro Ser Pro Trp Val Ile Val Ile Gly Ser Phe Phe Ser	
550 555 560	

aca tgt ggg gct gga ctt cag agc ctc	aca ggt gca ccg agg ctg cta	1904
Thr Cys Gly Ala Gly Leu Gln Ser Leu Thr	Gly Ala Pro Arg Leu Leu	
565	575 580	
caa gct att gcc aag gat aac atc ata ccg ttt ctg agg gtt ttt ggc	1952	
Gln Ala Ile Ala Lys Asp Asn Ile Ile Pro Phe Leu Arg Val Phe Gly		
585	590 595	
cac agc aaa gcc aat ggg gaa cct acc tgg gct tta ctt cta act gct	2000	
His Ser Lys Ala Asn Gly Glu Pro Thr Trp Ala Leu Leu Thr Ala		
600	605 610	
gcc att gca gag ctt gga ata ctc att gcc tcc ctg gat ctt gtg gcc	2048	
Ala Ile Ala Glu Leu Gly Ile Leu Ile Ala Ser Leu Asp Leu Val Ala		
615	620 625	
cca att ctt tcc atg ttt ttt ctc atg tgt tac ctc ttt gta aac ttg	2096	
Pro Ile Leu Ser Met Phe Phe Leu Met Cys Tyr Leu Phe Val Asn Leu		
630	635 640	
gca tgt gcc ttg caa aca tta ctt cga aca ccc aac tgg aga ccc cga	2144	
Ala Cys Ala Leu Gln Thr Leu Leu Arg Thr Pro Asn Trp Arg Pro Arg		
645	650 655 660	
ttc cgc tac tac cat tgg gcc ctt tct ttc atg gga atg agt atc tgt	2192	
Phe Arg Tyr Tyr His Trp Ala Leu Ser Phe Met Gly Met Ser Ile Cys		
665	670 675	
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Leu Ala Leu Met Phe Ile Ser Ser Trp Tyr Tyr Ala Ile Val Ala Met		
680	685 690	
gta ata gct ggt atg atc tac aag tac att gaa tac caa gga gct gag	2288	
Val Ile Ala Gly Met Ile Tyr Lys Tyr Ile Glu Tyr Gln Gly Ala Glu		
695	700 705	
aaa gaa tgg ggt gat ggt atc cgt ggg ctg tcc ctc agt gca gcc cgg	2336	
Lys Glu Trp Gly Asp Gly Ile Arg Gly Leu Ser Leu Ser Ala Ala Arg		
710	715 720	
ttt gct ttg ctt cga ttg gag gaa gga cct cca cac act aaa aac tgg	2384	
Phe Ala Leu Leu Arg Leu Glu Glu Gly Pro Pro His Thr Lys Asn Trp		
725	730 735 740	
agg cct cag ttg ctt gta tta ctg aaa cta gat gaa gac tta cat gtc	2432	
Arg Pro Gln Leu Leu Val Leu Leu Lys Leu Asp Glu Asp Leu His Val		
745	750 755	
aag cat cct cgc ctc ctc acc ttt gcc tca cag ctc aaa gca gga aaa	2480	
Lys His Pro Arg Leu Leu Thr Phe Ala Ser Gln Leu Lys Ala Gly Lys		
760	765 770	
ggt ctc act att gtg ggc tct gtc atc gtg ggg aac ttc cta gag aac	2528	
Gly Leu Thr Ile Val Gly Ser Val Ile Val Gly Asn Phe Leu Glu Asn		
775	780 785	
tac ggt gaa gct tta gct gct gag cag acc ata aag cac cta atg gag	2576	
Tyr Gly Glu Ala Leu Ala Ala Glu Gln Thr Ile Lys His Leu Met Glu		
790	795 800	

gca gag aag gta aaa gga ttc tgc cag ctg gtg gtg gcc gcc aag ctg	2624
Ala Glu Lys Val Lys Gly Phe Cys Gln Leu Val Val Ala Ala Lys Leu	
805 810 815 820	
aga gag ggc att tcc cac ctc atc cag tca tgt ggc ctt ggg ggc atg	2672
Arg Glu Gly Ile Ser His Leu Ile Gln Ser Cys Gly Leu Gly Gly Met	
825 830 835	
aag cac aac acg gtg gtg atg ggc tgg cct aat ggc tgg cgt caa agc	2720
Lys His Asn Thr Val Val Met Gly Trp Pro Asn Gly Trp Arg Gln Ser	
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Glu Asp Ala Arg Ala Trp Lys Thr Phe Ile Gly Thr Val Arg Val Thr	
855 860 865	
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Thr Ala Ala His Leu Ala Leu Leu Val Ala Lys Asn Ile Ser Phe Phe	
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ccc agc aat gtg gag caa ttt tct gag ggc aac att gat gtg tgg tgg	2864
Pro Ser Asn Val Glu Gln Phe Ser Glu Gly Asn Ile Asp Val Trp Trp	
885 890 895 900	
att gtg cat gat ggg ggg atg ctt atg cta cta cca ttc cta ctg aaa	2912
Ile Val His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Lys	
905 910 915	
cag cac aag gtg tgg cga aag tgc agc ata cgg atc ttc aca gta gcc	2960
Gln His Lys Val Trp Arg Lys Cys Ser Ile Arg Ile Phe Thr Val Ala	
920 925 930	
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Gln Leu Glu Asp Asn Ser Ile Gln Met Lys Lys Asp Leu Ala Thr Phe	
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cta tat cac tta cgc att gag gcg gag gta gaa gtg gtg gag atg cat	3056
Leu Tyr His Leu Arg Ile Glu Ala Glu Val Glu Val Glu Met His	
950 955 960	
gac agt gat ata tca gca tat act tac gag cgc act ttg atg atg gaa	3104
Asp Ser Asp Ile Ser Ala Tyr Thr Tyr Glu Arg Thr Leu Met Met Glu	
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Gln Arg Ser Gln Met Leu Arg His Met Arg Leu Ser Lys Thr Glu Arg	
985 990 995	
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Asp Arg Glu Ala Gln Leu Val Lys Asp Arg Asn Ser Met Leu Arg Leu	
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Thr Ser Ile Gly Ser Asp Glu Asp Glu Glu Thr Glu Thr Tyr Gln Glu	
1015 1020 1025	
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ccg gac cag tcc aat gtg agg cgg atg cat aca gca gtg aaa ntc aac 3392
Pro Asp Gln Ser Asn Val Arg Arg Met His Thr Ala Val Lys Xaa Asn
                1065                1070                1075

gag gtt ata gtt aac aag tcc cat gaa gca aag ctg gtt tta ttg aat 3440
Glu Val Ile Val Asn Lys Ser His Glu Ala Lys Leu Val Leu Leu Asn
                1080                1085                1090

atg cca ggg cca ccc cga aac cct gag ggt gat gaa aac tac atg gag 3488
Met Pro Gly Pro Pro Arg Asn Pro Glu Gly Asp Glu Asn Tyr Met Glu
                1095                1100                1105

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Phe Leu Glu Val Leu Thr Glu Gly Leu Glu Arg Val Leu Leu Val Arg
                1110                1115                1120

ggg ggt ggc agt gaa gtg atc acc att tat tca taacctactc tgaatgaccg 3589
Gly Gly Gly Ser Glu Val Ile Thr Ile Tyr Ser
1125                1130                1135

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Gly	Val	Arg	Tyr	Val	Asn	Lys	Phe	Ala	Ser	Leu	Phe	Leu	Ala	Cys	Val	325	330	335
Ile	Val	Ser	Ile	Leu	Ala	Ile	Tyr	Ala	Gly	Ala	Ile	Lys	Ser	Ser	Phe	340	345	350
Ala	Pro	Pro	His	Phe	Pro	Val	Cys	Met	Leu	Gly	Asn	Arg	Thr	Leu	Ser	355	360	365
Ser	Arg	His	Ile	Asp	Val	Cys	Ser	Lys	Thr	Lys	Glu	Ile	Asn	Asn	Met	370	375	380
Thr	Val	Pro	Ser	Lys	Leu	Trp	Gly	Phe	Phe	Cys	Asn	Ser	Ser	Gln	Phe	385	390	395
Phe	Asn	Ala	Thr	Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Thr	Ser	405	410	415
Ile	Gln	Gly	Ile	Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu	420	425	430
Trp	Ser	Asn	Tyr	Leu	Pro	Lys	Gly	Glu	Ile	Ile	Glu	Lys	Pro	Ser	Ala	435	440	445
Lys	Ser	Ser	Asp	Val	Leu	Gly	Ser	Leu	Asn	His	Glu	Tyr	Val	Leu	Val	450	455	460
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Val	Thr	Gly	Ile	Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	485	490	495
Ala	Gln	Lys	Ser	Ile	Pro	Ile	Gly	Thr	Ile	Leu	Ala	Ile	Leu	Thr	Thr	500	505	510
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Val	Val	Gly	Thr	Leu	Ser	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	545	550	555
Ser	Phe	Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	565	570	575
Pro	Arg	Leu	Leu	Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	580	585	590
Arg	Val	Phe	Gly	His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	595	600	605

Leu 610	Leu	Thr	Ala	Ala	Ile	Ala 615	Glu	Leu	Gly	Ile	Leu 620	Ile	Ala	Ser	Leu
Asp 625	Leu	Val	Ala	Pro	Ile 630	Leu	Ser	Met	Phe	Phe 635	Leu	Met	Cys	Tyr	Leu 640
Phe	Val	Asn	Leu	Ala 645	Cys	Ala	Leu	Gln	Thr 650	Leu	Leu	Arg	Thr	Pro 655	Asn
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Met	Ser 675	Ile	Cys	Leu	Ala	Leu	Met 680	Phe	Ile	Ser	Ser	Trp 685	Tyr	Tyr	Ala
Ile 690	Val	Ala	Met	Val	Ile	Ala 695	Gly	Met	Ile	Tyr	Lys 700	Tyr	Ile	Glu	Tyr
Gln 705	Gly	Ala	Glu	Lys 710	Glu	Trp	Gly	Asp	Gly 715	Ile	Arg	Gly	Leu	Ser	Leu 720
Ser	Ala	Ala	Arg 725	Phe	Ala	Leu	Leu	Arg 730	Leu	Glu	Glu	Gly	Pro	Pro 735	His
Thr	Lys	Asn 740	Trp	Arg	Pro	Gln	Leu	Leu 745	Val	Leu	Leu	Lys	Leu 750	Asp	Glu
Asp	Leu 755	His	Val	Lys	His	Pro	Arg 760	Leu	Leu	Thr	Phe 765	Ala	Ser	Gln	Leu
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Phe 785	Leu	Glu	Asn	Tyr	Gly 790	Glu	Ala	Leu	Ala 795	Ala	Glu	Gln	Thr	Ile	Lys 800
His	Leu	Met	Glu 805	Ala	Glu	Lys	Val	Lys 810	Gly	Phe	Cys	Gln	Leu	Val 815	Val
Ala	Ala	Lys 820	Leu	Arg	Glu	Gly	Ile	Ser 825	His	Leu	Ile	Gln	Ser 830	Cys	Gly
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Phe	Thr	Val	Ala	Gln	Leu	Glu	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	930	935	940
Leu	Ala	Thr	Phe	Leu	Tyr	His	Leu	Arg	Ile	Glu	Ala	Glu	Val	Glu	Val	945	950	955
Val	Glu	Met	His	Asp	Ser	Asp	Ile	Ser	Ala	Tyr	Thr	Tyr	Glu	Arg	Thr	965	970	975
Leu	Met	Met	Glu	Gln	Arg	Ser	Gln	Met	Leu	Arg	His	Met	Arg	Leu	Ser	980	985	990
Lys	Thr	Glu	Arg	Asp	Arg	Glu	Ala	Gln	Leu	Val	Lys	Asp	Arg	Asn	Ser	995	1000	1005
Met	Leu	Arg	Leu	Thr	Ser	Ile	Gly	Ser	Asp	Glu	Asp	Glu	Glu	Thr	Glu	1010	1015	1020
Thr	Tyr	Gln	Glu	Lys	Val	His	Met	Thr	Trp	Thr	Lys	Asp	Lys	Tyr	Met	1025	1030	1035
Ala	Ser	Arg	Gly	Gln	Lys	Ala	Lys	Ser	Met	Glu	Gly	Phe	Gln	Asp	Leu	1045	1050	1055
Leu	Asn	Met	Arg	Pro	Asp	Gln	Ser	Asn	Val	Arg	Arg	Met	His	Thr	Ala	1060	1065	1070
Val	Lys	Xaa	Asn	Glu	Val	Ile	Val	Asn	Lys	Ser	His	Glu	Ala	Lys	Leu	1075	1080	1085
Val	Leu	Leu	Asn	Met	Pro	Gly	Pro	Pro	Arg	Asn	Pro	Glu	Gly	Asp	Glu	1090	1095	1100
Asn	Tyr	Met	Glu	Phe	Leu	Glu	Val	Leu	Thr	Glu	Gly	Leu	Glu	Arg	Val	1105	1110	1115
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Met Val Thr Pro Thr Lys Ile Asp Asp Ile Pro Gly Leu Ser Asp Thr	
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Ser Pro Asp Leu Ser Ser Arg Ser Ser Ser Arg Val Arg Phe Ser Ser	
35 40 45	
cga gaa agt gtg cca gaa aca agc cgt agt gag cct atg agc gaa ctg	192
Arg Glu Ser Val Pro Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Leu	
50 55 60	
tct ggg gct act act tct ctg gca act gtt gcc cta gat cct tcc agt	240
Ser Gly Ala Thr Thr Ser Leu Ala Thr Val Ala Leu Asp Pro Ser Ser	
65 70 75	
gac cgg act tct aat ccc cag gat gtt acg gag gat gac ggc cat aaa	288
Asp Arg Thr Ser Asn Pro Gln Asp Val Thr Glu Asp Asp Gly His Lys	
80 85 90 95	
aaa gcc cga aat gct tat ntc aat aat tcc aac tat gaa gaa gga gac	336
Lys Ala Arg Asn Ala Tyr Xaa Asn Asn Ser Asn Tyr Glu Glu Gly Asp	
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Glu Tyr Phe Asp Lys Asn Leu Ala Leu Phe Glu Glu Glu Met Asp Thr	
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Arg Pro Lys Val Ser Ser Leu Leu Asn Arg Met Ala Asn Tyr Thr Asn	
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Leu Thr Gln Gly Ala Lys Glu His Glu Glu Ala Glu Asn Ile Thr Glu	
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Gly Lys Lys Lys Pro Thr Lys Ser Pro Gln Met Gly Thr Phe Met Gly	
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Val Tyr Leu Pro Cys Leu Gln Asn Ile Phe Gly Val Ile Leu Phe Leu	
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Arg Leu Thr Trp Val Val Gly Thr Ala Gly Ile Leu Gln Ala Phe Ala	
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Ile Val Leu Ile Cys Cys Cys Cys Thr Met Leu Thr Ala Ile Ser Met	
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Ser Ala Ile Ala Thr Asn Gly Val Val Pro Ala Gly Gly Ser Tyr Phe	
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Cys Phe Tyr Leu Gly Thr Thr Phe Ala Ala Ala Met Tyr Ile Leu Gly	
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Ala Ile Glu Ile Phe Leu Val Tyr Ile Val Pro Arg Ala Ala Ile Phe	
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Arg Ser Asp Asp Ala Leu Lys Glu Ser Ala Ala Met Leu Asn Asn Met	
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Ile Gly Val Arg Tyr Val Asn Lys Phe Ala Ser Leu Phe Leu Ala Cys	
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Val Ile Val Ser Ile Leu Ala Ile Tyr Ala Gly Ala Ile Lys Ser Ser	
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Phe Ala Pro Pro His Phe Pro Val Cys Met Leu Gly Asn Arg Thr Leu	
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Ser Ser Arg His Leu Asp Ile Cys Ser Lys Thr Lys Glu Val Asp Asn	
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Leu Trp Ser Asn Tyr Leu Pro Lys Gly Glu Ile Ile Glu Lys Pro Ser	
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Ala Lys Ser Ser Asp Val Leu Gly Asn Leu Asn His Glu Tyr Val Leu	
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Asp Ala Gln Lys Ser Ile Pro Ile Gly Thr Ile Leu Ala Ile Leu Thr	
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Leu Arg Val Phe Gly His Ser Lys Ala Asn Gly Glu Pro Thr Trp Ala	
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Leu Phe Val Asn Leu Ala Cys Ala Leu Gln Thr Leu Leu Arg Thr Pro	
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 atatagaaga gaaatattaa agtagactga aggggaactt gtgaaacatt aagcattgtt 5928
 ctcaaccgtt taattttattg aaaggagaag ctgctactga gcagctgcta ttcttttgtt 5988
 tacatagagt ctggttttgt ttgttttgtt ctgtgctggg aacataaata aagttttcta 6048
 cattattttc aaaaaaaaaa aaaaaaa 6075

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 <223> Xaa=Leu or Ile

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 Met His Pro Pro Glu Ala Thr Thr Lys Met Ser Ser Val Arg Phe Met
 1 5 10 15
 Val Thr Pro Thr Lys Ile Asp Asp Ile Pro Gly Leu Ser Asp Thr Ser
 20 25 30
 Pro Asp Leu Ser Ser Arg Ser Ser Arg Val Arg Phe Ser Ser Arg
 35 40 45
 Glu Ser Val Pro Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Leu Ser
 50 55 60
 Gly Ala Thr Thr Ser Leu Ala Thr Val Ala Leu Asp Pro Ser Ser Asp
 65 70 75 80
 Arg Thr Ser Asn Pro Gln Asp Val Thr Glu Asp Asp Gly His Lys Lys
 85 90 95
 Ala Arg Asn Ala Tyr Xaa Asn Asn Ser Asn Tyr Glu Glu Gly Asp Glu
 100 105 110
 Tyr Phe Asp Lys Asn Leu Ala Leu Phe Glu Glu Glu Met Asp Thr Arg
 115 120 125

Pro	Lys	Val	Ser	Ser	Leu	Leu	Asn	Arg	Met	Ala	Asn	Tyr	Thr	Asn	Leu	130	135	140
Thr	Gln	Gly	Ala	Lys	Glu	His	Glu	Glu	Ala	Glu	Asn	Ile	Thr	Glu	Gly	145	150	155
Lys	Lys	Lys	Pro	Thr	Lys	Ser	Pro	Gln	Met	Gly	Thr	Phe	Met	Gly	Val	165	170	175
Tyr	Leu	Pro	Cys	Leu	Gln	Asn	Ile	Phe	Gly	Val	Ile	Leu	Phe	Leu	Arg	180	185	190
Leu	Thr	Trp	Val	Val	Gly	Thr	Ala	Gly	Ile	Leu	Gln	Ala	Phe	Ala	Ile	195	200	205
Val	Leu	Ile	Cys	Cys	Cys	Cys	Thr	Met	Leu	Thr	Ala	Ile	Ser	Met	Ser	210	215	220
Ala	Ile	Ala	Thr	Asn	Gly	Val	Val	Pro	Ala	Gly	Gly	Ser	Tyr	Phe	Met	225	230	235
Ile	Ser	Arg	Ala	Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys	245	250	255
Phe	Tyr	Leu	Gly	Thr	Thr	Phe	Ala	Ala	Ala	Met	Tyr	Ile	Leu	Gly	Ala	260	265	270
Ile	Glu	Ile	Phe	Leu	Val	Tyr	Ile	Val	Pro	Arg	Ala	Ala	Ile	Phe	Arg	275	280	285
Ser	Asp	Asp	Ala	Leu	Lys	Glu	Ser	Ala	Ala	Met	Leu	Asn	Asn	Met	Arg	290	295	300
Val	Tyr	Gly	Thr	Ala	Phe	Leu	Val	Leu	Met	Val	Leu	Val	Val	Phe	Ile	305	310	315
Gly	Val	Arg	Tyr	Val	Asn	Lys	Phe	Ala	Ser	Leu	Phe	Leu	Ala	Cys	Val	325	330	335
Ile	Val	Ser	Ile	Leu	Ala	Ile	Tyr	Ala	Gly	Ala	Ile	Lys	Ser	Ser	Phe	340	345	350
Ala	Pro	Pro	His	Phe	Pro	Val	Cys	Met	Leu	Gly	Asn	Arg	Thr	Leu	Ser	355	360	365
Ser	Arg	His	Leu	Asp	Ile	Cys	Ser	Lys	Thr	Lys	Glu	Val	Asp	Asn	Met	370	375	380
Thr	Val	Pro	Ser	Lys	Leu	Trp	Gly	Phe	Phe	Cys	Asn	Ser	Ser	Gln	Phe	385	390	395
Phe	Asn	Ala	Thr	Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Ile	Ser	405	410	415
Ile	Gln	Gly	Ile	Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu	420	425	430
Trp	Ser	Asn	Tyr	Leu	Pro	Lys	Gly	Glu	Ile	Ile	Glu	Lys	Pro	Ser	Ala	435	440	445

Lys	Ser	Ser	Asp	Val	Leu	Gly	Asn	Leu	Asn	His	Glu	Tyr	Val	Leu	Ala	450	455	460
Asp	Ile	Thr	Thr	Ser	Phe	Thr	Leu	Leu	Val	Gly	Ile	Phe	Phe	Pro	Ser	465	470	475
Val	Thr	Gly	Ile	Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	485	490	495
Ala	Gln	Lys	Ser	Ile	Pro	Ile	Gly	Thr	Ile	Leu	Ala	Ile	Leu	Thr	Thr	500	505	510
Ser	Phe	Val	Tyr	Leu	Ser	Asn	Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	515	520	525
Gly	Val	Val	Leu	Arg	Asp	Lys	Phe	Gly	Asp	Ala	Val	Lys	Gly	Asn	Leu	530	535	540
Val	Val	Gly	Thr	Leu	Ser	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	545	550	555
Ser	Phe	Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	565	570	575
Pro	Arg	Leu	Leu	Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	580	585	590
Arg	Val	Phe	Gly	His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	595	600	605
Leu	Leu	Thr	Ala	Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	610	615	620
Asp	Leu	Val	Ala	Pro	Ile	Xaa	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	625	630	635
Phe	Val	Asn	Leu	Ala	Cys	Ala	Leu	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	645	650	655
Trp	Arg	Pro	Arg	Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	660	665	670
Met	Ser	Ile	Cys	Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	675	680	685
Ile	Val	Ala	Met	Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	690	695	700
Gln	Gly	Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	705	710	715
Ser	Ala	Ala	Arg	Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	725	730	735
Thr	Lys	Asn	Trp	Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	740	745	750
Asp	Leu	His	Val	Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	755	760	765

Lys	Ala	Gly	Lys	Gly	Leu	Thr	Ile	Val	Gly	Ser	Val	Ile	Val	Gly	Asn	770	775	780
Phe	Leu	Glu	Asn	Tyr	Gly	Asp	Ala	Leu	Ala	Ala	Glu	Gln	Thr	Ile	Lys	785	790	795
His	Leu	Met	Glu	Ala	Glu	Lys	Val	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	805	810	815
Ala	Ala	Lys	Leu	Lys	Glu	Gly	Ile	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	820	825	830
Leu	Gly	Gly	Met	Lys	His	Asn	Thr	Val	Val	Met	Gly	Trp	Pro	Asn	Gly	835	840	845
Trp	Arg	Gln	Ser	Glu	Asp	Ala	Arg	Ala	Trp	Lys	Thr	Phe	Ile	Gly	Thr	850	855	860
Val	Arg	Val	Thr	Thr	Ala	Ala	His	Leu	Ala	Leu	Leu	Val	Ala	Lys	Asn	865	870	875
Val	Ser	Phe	Phe	Pro	Ser	Asn	Val	Glu	Gln	Phe	Ser	Glu	Gly	Asn	Ile	885	890	895
Asp	Val	Arg	Trp	Ile	Val	His	Asp	Gly	Gly	Met	Leu	Met	Leu	Leu	Pro	900	905	910
Phe	Leu	Leu	Lys	Gln	His	Lys	Val	Trp	Arg	Lys	Cys	Ser	Ile	Arg	Ile	915	920	925
Phe	Thr	Val	Ala	Gln	Leu	Glu	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	930	935	940
Leu	Ala	Thr	Phe	Leu	Tyr	His	Leu	Arg	Ile	Glu	Ala	Glu	Val	Glu	Val	945	950	955
Val	Glu	Met	His	Asp	Ser	Asp	Ile	Ser	Ala	Tyr	Thr	Tyr	Glu	Arg	Thr	965	970	975
Leu	Met	Met	Glu	Gln	Arg	Ser	Gln	Met	Leu	Arg	His	Met	Arg	Leu	Ser	980	985	990
Lys	Thr	Glu	Arg	Asp	Arg	Glu	Ala	Gln	Leu	Val	Lys	Asp	Arg	Asn	Ser	995	1000	1005
Met	Leu	Arg	Leu	Thr	Ser	Ile	Gly	Ser	Asp	Glu	Asp	Glu	Glu	Thr	Glu	1010	1015	1020
Thr	Tyr	Gln	Glu	Lys	Val	His	Met	Thr	Trp	Thr	Lys	Asp	Lys	Tyr	Met	1025	1030	1035
Ala	Ser	Arg	Gly	Gln	Lys	Val	Lys	Ser	Met	Glu	Gly	Phe	Gln	Asp	Leu	1045	1050	1055
Leu	Asn	Met	Arg	Pro	Asp	Gln	Ser	Asn	Val	Arg	Arg	Met	His	Thr	Ala	1060	1065	1070
Val	Lys	Leu	Asn	Glu	Val	Ile	Val	Asn	Lys	Ser	His	Glu	Ala	Lys	Leu	1075	1080	1085

Val Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Pro Glu Gly Asp Glu
1090 1095 1100

Asn Tyr Met Glu Phe Leu Glu Val Xaa Thr Glu Gly Leu Glu Arg Val
1105 1110 1115 1120

Leu Leu Val Arg Gly Gly Gly Ser Glu Val Ile Thr Ile Tyr Ser
1125 1130 1135

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Met His Pro Pro Glu Ala Thr Thr Lys Met Ser Ser Val Arg Phe
1 5 10 15

atg gtg aca cca act aag att gat gac att cca ggt ttg tca gac acc 96
Met Val Thr Pro Thr Lys Ile Asp Asp Ile Pro Gly Leu Ser Asp Thr
20 25 30

agc ccg gac ntc agc tct cgg tct agt tct cga gta aga ttt agc tcc 144
Ser Pro Asp Xaa Ser Ser Arg Ser Ser Arg Val Arg Phe Ser Ser
35 40 45

cga gaa agt gtg cca gaa aca agc cgt agt gag cct atg agc gaa ctg 192
Arg Glu Ser Val Pro Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Leu
50 55 60

tct ggg gct act act tct ctg gca act gtt gcc cta gat cct tcc agt 240
Ser Gly Ala Thr Thr Ser Leu Ala Thr Val Ala Leu Asp Pro Ser Ser
65 70 75

gac cgg act tct aat ccc cag gat gtt acg gag gac ccg agt cag aac 288
Asp Arg Thr Ser Asn Pro Gln Asp Val Thr Glu Asp Pro Ser Gln Asn
80 85 90 95

tcc atc aca ggg gag cac agc cag ctg tta gat gac ggc cat aaa aaa	336
Ser Ile Thr Gly Glu His Ser Gln Leu Leu Asp Asp Gly His Lys Lys	
100 105 110	
gcc cga aat gct tat ctc aat aat tcc aac tat gaa gaa gga gac gaa	384
Ala Arg Asn Ala Tyr Leu Asn Asn Ser Asn Tyr Glu Glu Gly Asp Glu	
115 120 125	
tat ttt gat aaa aat ttg gca ctc ttt gag gaa gaa atg gac acc aga	432
Tyr Phe Asp Lys Asn Leu Ala Leu Phe Glu Glu Glu Met Asp Thr Arg	
130 135 140	
cca aag gtg tct tct ctc ctc aac cgc atg gcc aac tat aca aat ctg	480
Pro Lys Val Ser Ser Leu Leu Asn Arg Met Ala Asn Tyr Thr Asn Leu	
145 150 155	
aca caa gga gca aag gaa cat gaa gag gca gag aac atc act gaa ggg	528
Thr Gln Gly Ala Lys Glu His Glu Glu Ala Glu Asn Ile Thr Glu Gly	
160 165 170 175	
aaa aag aag cct acc aag agc ccc caa atg ggt act ttc atg ggt gtc	576
Lys Lys Lys Pro Thr Lys Ser Pro Gln Met Gly Thr Phe Met Gly Val	
180 185 190	
tac ctc cca tgt cta cag aac atc ttt gga gtg atc ctc ttc ctg cgt	624
Tyr Leu Pro Cys Leu Gln Asn Ile Phe Gly Val Ile Leu Phe Leu Arg	
195 200 205	
ctt acc tgg gta gtg gga aca gct gga atc ctt cag gcc ttt gca att	672
Leu Thr Trp Val Val Gly Thr Ala Gly Ile Leu Gln Ala Phe Ala Ile	
210 215 220	
gtc ctc atc tgc tgc tgc tgt aca atg tta act gcc atc tcc atg agc	720
Val Leu Ile Cys Cys Cys Cys Thr Met Leu Thr Ala Ile Ser Met Ser	
225 230 235	
gcc atc gcc act aac gga gtg gtg cca gct ggg ggc tca tac ttc atg	768
Ala Ile Ala Thr Asn Gly Val Val Pro Ala Gly Gly Ser Tyr Phe Met	
240 245 250 255	
att tcc aga gcc ctg ggc cca gag ttt ggc ggg gct gta ggc ctc tgc	816
Ile Ser Arg Ala Leu Gly Pro Glu Phe Gly Gly Ala Val Gly Leu Cys	
260 265 270	
ttt tat ctt ggc acc aca ttt gca gca gcc atg tat att ctt ggt gcc	864
Phe Tyr Leu Gly Thr Thr Phe Ala Ala Ala Met Tyr Ile Leu Gly Ala	
275 280 285	
att gaa atc ttt ctg gta tac att gtc ccc cga gct gcc atc ttt cgg	912
Ile Glu Ile Phe Leu Val Tyr Ile Val Pro Arg Ala Ala Ile Phe Arg	
290 295 300	
agt gac gat gca ntc aag gag tca gca gct atg ctg aac aac atg cgc	960
Ser Asp Asp Ala Xaa Lys Glu Ser Ala Ala Met Leu Asn Asn Met Arg	
305 310 315	
gtc tat ggt aca gcc ttc ttg gtc ctc atg gtc ttg gtg gta ttc atc	1008
Val Tyr Gly Thr Ala Phe Leu Val Leu Met Val Leu Val Val Phe Ile	
320 325 330 335	

ggc gta cgc tat gtg aat aag ttt gcc tca ctc ttc ctg gcc tgt gta	1056
Gly Val Arg Tyr 340 Val Asn Lys Phe 345 Ala Ser Leu Phe Leu Ala Cys Val 350	
att gtg tcg atc ttg gct atc tat gct ggt gcc atc aag tct tcc ttt	1104
Ile Val Ser Ile 355 Leu Ala Ile Tyr 360 Ala Gly Ala Ile Lys Ser Ser Phe 365	
gct cca cca cac ttc ccg gtc tgt atg ctg ggc aac cgt acc ctg tca	1152
Ala Pro Pro 370 His Phe Pro Val Cys Met Leu Gly Asn Arg Thr Leu Ser 380	
tca aga cac ctt gac att tgc tct aag acc aag gag gtt gac aac atg	1200
Ser Arg His Leu Asp Ile Cys Ser Lys Thr Lys Glu Val Asp Asn Met 385 390 395	
aca gta cca tca aag tta tgg gga ttc ttc tgc aac tcg agt cag ttc	1248
Thr Val Pro Ser Lys Leu Trp Gly Phe Phe Cys Asn Ser Ser Gln Phe 400 405 410 415	
ttt aat gcc acc tgt gat gag tac ttt gtt cac aat aac gtc atc tca	1296
Phe Asn Ala Thr 420 Cys Asp Glu Tyr Phe Val His Asn Asn Val Ile Ser 425 430	
atc caa ggc att cca ggg ttg gct agt ggt atc att act gaa aat ctt	1344
Ile Gln Gly Ile Pro Gly Leu Ala Ser Gly Ile Ile Thr Glu Asn Leu 435 440 445	
tgg agt aat tat tta cca aag ggt gag ata att gaa aag cca tca gcc	1392
Trp Ser Asn Tyr Leu Pro Lys Gly Glu Ile Ile Glu Lys Pro Ser Ala 450 455 460	
aag tca tct gat gtc tta ggc aac tta aac cat gaa tat gtt ctt gct	1440
Lys Ser Ser Asp Val Leu Gly Asn Leu Asn His Glu Tyr Val Leu Ala 465 470 475	
gat atc acc acc tcc ttc act ctg ctg gtg ggg atc ttc ttt ccc tcg	1488
Asp Ile Thr Thr Ser 485 Phe Thr Leu Leu Val Gly Ile Phe Phe Pro Ser 490 495	
gtc aca ggt atc atg gct ggg tca aac aga tct gga gat ctg aaa gat	1536
Val Thr Gly Ile Met Ala Gly Ser Asn Arg Ser Gly Asp Leu Lys Asp 500 505 510	
gcc cag aag tct att ccc att ggg acc atc ctt gcc atc ctg acc aca	1584
Ala Gln Lys Ser Ile Pro Ile Gly Thr Ile Leu Ala Ile Leu Thr Thr 515 520 525	
tcc ttt gtg tat tta agc aat gtt gtc ctt ttt ggt gca tgt att gaa	1632
Ser Phe Val Tyr Leu Ser Asn Val Val Leu Phe Gly Ala Cys Ile Glu 530 535 540	
gga gtc gtt ctc aga gac aaa ttt ggg gat gct gta aaa ggg aat ttg	1680
Gly Val Val Leu Arg Asp Lys Phe Gly Asp Ala Val Lys Gly Asn Leu 545 550 555	
gtt gta ggc acc tta tcc tgg cca tcc ccg tgg gtg atc gtt att ggc	1728
Val Val Gly Thr Leu Ser Trp Pro Ser Pro Trp Val Ile Val Ile Gly 560 565 570 575	

tcc	ttc	ttt	tca	aca	tgt	ggg	gct	ggg	ctg	cag	agc	ctc	aca	ggg	gcg	1776
Ser	Phe	Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	
				580					585					590		
cct	cgg	ctg	ctg	cag	gct	atc	gcc	aag	gat	aac	atc	ata	cct	ttc	ctt	1824
Pro	Arg	Leu	Leu	Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	
			595					600					605			
agg	gtt	ttt	ggg	cac	agc	aaa	gct	aat	ggg	gaa	cct	acc	tgg	gct	tta	1872
Arg	Val	Phe	Gly	His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	
		610					615					620				
ctt	cta	act	gct	gcc	ata	gca	gag	ctg	gga	att	ctc	atc	gcc	tcc	ctg	1920
Leu	Leu	Thr	Ala	Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	
		625				630						635				
gat	ctc	gtg	gcc	cca	att	ctt	tcc	atg	ttt	ttt	ctc	atg	tgt	tac	ctc	1968
Asp	Leu	Val	Ala	Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	
640					645						650				655	
ttt	gtg	aac	ttg	gct	tgt	gcc	ttg	caa	aca	ttg	ctg	cga	acc	ccc	aac	2016
Phe	Val	Asn	Leu	Ala	Cys	Ala	Leu	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	
				660					665					670		
tgg	agg	cct	cga	ttc	cgc	tat	tat	cac	tgg	gcc	ctc	tct	ttc	atg	gga	2064
Trp	Arg	Pro	Arg	Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	
			675					680					685			
atg	agt	atc	tgt	cta	gct	ctg	atg	ttc	att	tct	tct	tgg	tat	tat	gcc	2112
Met	Ser	Ile	Cys	Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	
		690					695					700				
att	gta	gct	atg	gta	ata	gct	ggc	atg	atc	tac	aag	tac	att	gaa	tat	2160
Ile	Val	Ala	Met	Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	
		705				710					715					
caa	ggg	gct	gag	aaa	gaa	tgg	ggg	gat	ggg	atc	cgt	ggg	ctg	tcg	ctc	2208
Gln	Gly	Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	
720					725					730					735	
agt	gca	gcc	cgc	ttc	gct	ttg	ctc	cgt	cta	gag	gaa	gga	cct	cct	cac	2256
Ser	Ala	Ala	Arg	Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	
			740						745					750		
act	aaa	aac	tgg	agg	cct	cag	ctg	ctc	gtc	cta	ctg	aag	ctg	gat	gaa	2304
Thr	Lys	Asn	Trp	Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	
			755					760					765			
gat	tta	cac	gtc	aag	cac	cct	cgc	ctc	ctc	acc	ttt	gcc	tcc	cag	ctc	2352
Asp	Leu	His	Val	Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	
		770					775					780				
aag	gca	gga	aag	gga	ctc	acg	att	gtg	ggc	tct	gtc	atc	gtg	ggg	aac	2400
Lys	Ala	Gly	Lys	Gly	Leu	Thr	Ile	Val	Gly	Ser	Val	Ile	Val	Gly	Asn	
		785				790					795					
ttc	ttg	gag	aac	tat	ggg	gac	gcg	ctc	gcg	gca	gag	cag	acc	att	aag	2448
Phe	Leu	Glu	Asn	Tyr	Gly	Asp	Ala	Leu	Ala	Ala	Glu	Gln	Thr	Ile	Lys	
800					805					810					815	

cac	cta	atg	gag	gca	gaa	aag	gta	aaa	gga	ttc	tgc	caa	ttg	gtg	gtg	2496
His	Leu	Met	Glu	Ala	Glu	Lys	Val	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	
				820					825					830		
gct	gcc	aag	ctg	aaa	gag	ggc	att	tca	cac	ctc	atc	cag	tcc	tgt	ggc	2544
Ala	Ala	Lys	Leu	Lys	Glu	Gly	Ile	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	
			835					840					845			
ntc	gga	ggc	atg	aaa	cac	aac	aca	gtg	gtg	atg	ggc	tgg	ccc	aat	ggc	2592
Xaa	Gly	Gly	Met	Lys	His	Asn	Thr	Val	Val	Met	Gly	Trp	Pro	Asn	Gly	
		850					855					860				
tgg	cgt	cag	agt	gaa	gat	gct	cgc	gct	tgg	aag	act	ttc	att	ggc	aca	2640
Trp	Arg	Gln	Ser	Glu	Asp	Ala	Arg	Ala	Trp	Lys	Thr	Phe	Ile	Gly	Thr	
	865					870					875					
gta	cga	gtg	aca	act	gct	gcc	cat	cta	gcc	ctg	ctg	gtg	gct	aaa	aat	2688
Val	Arg	Val	Thr	Thr	Ala	Ala	His	Leu	Ala	Leu	Leu	Val	Ala	Lys	Asn	
880					885				890						895	
gtc	tcc	ttc	ttt	ccc	agc	aat	gtg	gag	cag	ttt	tct	gag	ggc	aac	att	2736
Val	Ser	Phe	Phe	Pro	Ser	Asn	Val	Glu	Gln	Phe	Ser	Glu	Gly	Asn	Ile	
				900					905					910		
gat	gtg	cgg	tgg	att	gtg	cat	gat	ggg	ggc	atg	ctc	atg	cta	tta	ccg	2784
Asp	Val	Arg	Trp	Ile	Val	His	Asp	Gly	Gly	Met	Leu	Met	Leu	Leu	Pro	
			915					920					925			
ttc	ctg	ctg	aaa	cag	cac	aag	gtt	tgg	cgg	aaa	tgc	agc	ata	cgg	atc	2832
Phe	Leu	Leu	Lys	Gln	His	Lys	Val	Trp	Arg	Lys	Cys	Ser	Ile	Arg	Ile	
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ttc	aca	gta	gcc	caa	cta	gaa	gac	aac	agt	atc	cag	atg	aag	aag	gat	2880
Phe	Thr	Val	Ala	Gln	Leu	Glu	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	
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ctg	gcc	acc	ttt	ctg	tac	cac	ctg	cgc	att	gag	gca	gaa	gtg	gaa	gtg	2928
Leu	Ala	Thr	Phe	Leu	Tyr	His	Leu	Arg	Ile	Glu	Ala	Glu	Val	Glu	Val	
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gtg	gag	atg	cac	gac	agt	gac	ata	tct	gcc	tat	aca	tat	gag	cgc	acc	2976
Val	Glu	Met	His	Asp	Ser	Asp	Ile	Ser	Ala	Tyr	Thr	Tyr	Glu	Arg	Thr	
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ctg	atg	atg	gag	cag	agg	tcc	cag	atg	ctt	cgg	cat	atg	cgg	ctg	tcc	3024
Leu	Met	Met	Glu	Gln	Arg	Ser	Gln	Met	Leu	Arg	His	Met	Arg	Leu	Ser	
			995				1000						1005			
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Lys	Thr	Glu	Arg	Asp	Arg	Glu	Ala	Gln	Leu	Val	Lys	Asp	Arg	Asn	Ser	
		1010					1015					1020				
atg	cta	cgc	ttg	acc	agc	att	ggc	tct	gat	gag	gac	gaa	gag	aca	gaa	3120
Met	Leu	Arg	Leu	Thr	Ser	Ile	Gly	Ser	Asp	Glu	Asp	Glu	Glu	Thr	Glu	
	1025					1030				1035						
acg	tac	cag	gag	aag	gtg	cac	atg	act	tgg	acc	aag	gat	aaa	tac	atg	3168
Thr	Tyr	Gln	Glu	Lys	Val	His	Met	Thr	Trp	Thr	Lys	Asp	Lys	Tyr	Met	
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Ala Ser Arg Gly Gln Lys Val Lys Ser Met Glu Gly Phe Gln Asp Leu	
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Leu Asn Met Arg Pro Asp Gln Ser Asn Val Arg Arg Met His Thr Ala	
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Val Lys Leu Asn Glu Val Ile Val Asn Lys Ser His Glu Ala Lys Leu	
1090 1095 1100	
gtt ttg ttg aat atg cca gga cca ccc cgg aac cct gaa ggt gat gaa	3360
Val Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Pro Glu Gly Asp Glu	
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aac tac atg gaa ttt cta gaa gtg ctc act gag gga tta gaa cga gtc	3408
Asn Tyr Met Glu Phe Leu Glu Val Leu Thr Glu Gly Leu Glu Arg Val	
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Leu Leu Val Arg Gly Gly Gly Ser Glu Val Ile Thr Ile Tyr Ser	
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Pro Asp Leu Ser Ser Arg Ser Ser Arg Val Arg Phe Ser Ser Arg
35 40 45
Glu Ser Val Pro Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Leu Ser
50 55 60
Gly Ala Thr Thr Ser Leu Ala Thr Val Ala Leu Asp Pro Ser Ser Asp
65 70 75 80
Arg Thr Ser Asn Pro Gln Asp Val Thr Glu Asp Pro Ser Gln Asn Ser
85 90 95
Ile Thr Gly Glu His Ser Gln Leu Leu Asp Asp Gly His Lys Lys Ala
100 105 110
Arg Asn Ala Tyr Leu Asn Asn Ser Asn Tyr Glu Glu Gly Asp Glu Tyr
115 120 125
Phe Asp Lys Asn Leu Ala Leu Phe Glu Glu Glu Met Asp Thr Arg Pro
130 135 140
Lys Val Ser Ser Leu Leu Asn Arg Met Ala Asn Tyr Thr Asn Leu Thr
145 150 155 160
Gln Gly Ala Lys Glu His Glu Glu Ala Glu Asn Ile Thr Glu Gly Lys
165 170 175
Lys Lys Pro Thr Lys Ser Pro Gln Met Gly Thr Phe Met Gly Val Tyr
180 185 190
Leu Pro Cys Leu Gln Asn Ile Phe Gly Val Ile Leu Phe Leu Arg Leu
195 200 205
Thr Trp Val Val Gly Thr Ala Gly Ile Leu Gln Ala Phe Ala Ile Val
210 215 220
Leu Ile Cys Cys Cys Cys Thr Met Leu Thr Ala Ile Ser Met Ser Ala
225 230 235 240
Ile Ala Thr Asn Gly Val Val Pro Ala Gly Gly Ser Tyr Phe Met Ile
245 250 255

Ser	Arg	Ala	Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys	Phe		
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Tyr	Leu	Gly	Thr	Thr	Phe	Ala	Ala	Ala	Met	Tyr	Ile	Leu	Gly	Ala	Ile		
		275					280					285					
Glu	Ile	Phe	Leu	Val	Tyr	Ile	Val	Pro	Arg	Ala	Ala	Ile	Phe	Arg	Ser		
	290					295					300						
Asp	Asp	Ala	Leu	Lys	Glu	Ser	Ala	Ala	Met	Leu	Asn	Asn	Met	Arg	Val		
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Tyr	Gly	Thr	Ala	Phe	Leu	Val	Leu	Met	Val	Leu	Val	Val	Phe	Ile	Gly		
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Val	Arg	Tyr	Val	Asn	Lys	Phe	Ala	Ser	Leu	Phe	Leu	Ala	Cys	Val	Ile		
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Val	Ser	Ile	Leu	Ala	Ile	Tyr	Ala	Gly	Ala	Ile	Lys	Ser	Ser	Phe	Ala		
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Pro	Pro	His	Phe	Pro	Val	Cys	Met	Leu	Gly	Asn	Arg	Thr	Leu	Ser	Ser		
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Arg	His	Leu	Asp	Ile	Cys	Ser	Lys	Thr	Lys	Glu	Val	Asp	Asn	Met	Thr		
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Val	Pro	Ser	Lys	Leu	Trp	Gly	Phe	Phe	Cys	Asn	Ser	Ser	Gln	Phe	Phe		
			405						410					415			
Asn	Ala	Thr	Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Ile	Ser	Ile		
			420					425					430				
Gln	Gly	Ile	Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu	Trp		
		435					440					445					
Ser	Asn	Tyr	Leu	Pro	Lys	Gly	Glu	Ile	Ile	Glu	Lys	Pro	Ser	Ala	Lys		
	450					455					460						
Ser	Ser	Asp	Val	Leu	Gly	Asn	Leu	Asn	His	Glu	Tyr	Val	Leu	Ala	Asp		
465.					470					475					480		
Ile	Thr	Thr	Ser	Phe	Thr	Leu	Leu	Val	Gly	Ile	Phe	Phe	Pro	Ser	Val		
				485					490					495			
Thr	Gly	Ile	Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	Ala		
			500					505					510				
Gln	Lys	Ser	Ile	Pro	Ile	Gly	Thr	Ile	Leu	Ala	Ile	Leu	Thr	Thr	Ser		
		515					520					525					
Phe	Val	Tyr	Leu	Ser	Asn	Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	Gly		
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Val	Val	Leu	Arg	Asp	Lys	Phe	Gly	Asp	Ala	Val	Lys	Gly	Asn	Leu	Val		
545					550					555					560		
Val	Gly	Thr	Leu	Ser	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser		
				565					570					575			

Phe	Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	Pro	580	585	590
Arg	Leu	Leu	Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	Arg	595	600	605
Val	Phe	Gly	His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	610	615	620
Leu	Thr	Ala	Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	625	630	635
Leu	Val	Ala	Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	Phe	645	650	655
Val	Asn	Leu	Ala	Cys	Ala	Leu	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	660	665	670
Arg	Pro	Arg	Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	Met	675	680	685
Ser	Ile	Cys	Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	Ile	690	695	700
Val	Ala	Met	Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	Gln	705	710	715
Gly	Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Ser	725	730	735
Ala	Ala	Arg	Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	Thr	740	745	750
Lys	Asn	Trp	Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	Asp	755	760	765
Leu	His	Val	Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	Lys	770	775	780
Ala	Gly	Lys	Gly	Leu	Thr	Ile	Val	Gly	Ser	Val	Ile	Val	Gly	Asn	Phe	785	790	795
Leu	Glu	Asn	Tyr	Gly	Asp	Ala	Leu	Ala	Ala	Glu	Gln	Thr	Ile	Lys	His	805	810	815
Leu	Met	Glu	Ala	Glu	Lys	Val	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	Ala	820	825	830
Ala	Lys	Leu	Lys	Glu	Gly	Ile	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	Leu	835	840	845
Gly	Gly	Met	Lys	His	Asn	Thr	Val	Val	Met	Gly	Trp	Pro	Asn	Gly	Trp	850	855	860
Arg	Gln	Ser	Glu	Asp	Ala	Arg	Ala	Trp	Lys	Thr	Phe	Ile	Gly	Thr	Val	865	870	875
Arg	Val	Thr	Thr	Ala	Ala	His	Leu	Ala	Leu	Leu	Val	Ala	Lys	Asn	Val	885	890	895

Ser Phe Phe Pro Ser Asn Val Glu Gln Phe Ser Glu Gly Asn Ile Asp
900 905 910

Val Arg Trp Ile Val His Asp Gly Gly Met Leu Met Leu Leu Pro Phe
915 920 925

Leu Leu Lys Gln His Lys Val Trp Arg Lys Cys Ser Ile Arg Ile Phe
930 935 940

Thr Val Ala Gln Leu Glu Asp Asn Ser Ile Gln Met Lys Lys Asp Leu
945 950 955 960

Ala Thr Phe Leu Tyr His Leu Arg Ile Glu Ala Glu Val Glu Val Val
965 970 975

Glu Met His Asp Ser Asp Ile Ser Ala Tyr Thr Tyr Glu Arg Thr Leu
980 985 990

Met Met Glu Gln Arg Ser Gln Met Leu Arg His Met Arg Leu Ser Lys
995 1000 1005

Thr Glu Arg Asp Arg Glu Ala Gln Leu Val Lys Asp Arg Asn Ser Met
1010 1015 1020

Leu Arg Leu Thr Ser Ile Gly Ser Asp Glu Asp Glu Glu Thr Glu Thr
1025 1030 1035 1040

Tyr Gln Glu Lys Val His Met Thr Trp Thr Lys Asp Lys Tyr Met Ala
1045 1050 1055

Ser Arg Gly Gln Lys Val Lys Ser Met Glu Gly Phe Gln Asp Leu Leu
1060 1065 1070

Asn Met Arg Pro Asp Gln Ser Asn Val Arg Arg Met His Thr Ala Val
1075 1080 1085

Lys Leu Asn Glu Val Ile Val Asn Lys Ser His Glu Ala Lys Leu Val
1090 1095 1100

Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Pro Glu Gly Asp Glu Asn
1105 1110 1115 1120

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Met Pro His Phe Thr Val Thr Lys	
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gta gaa gac cca gag gag ggg gca gct ggc ccc ctc tct cct gag ccc	160
Val Glu Asp Pro Glu Glu Gly Ala Ala Gly Pro Leu Ser Pro Glu Pro	
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agc tca gca gaa gta aaa gcc cgg att cag gat ccc caa gaa cca gac	208
Ser Ser Ala Glu Val Lys Ala Arg Ile Gln Asp Pro Gln Glu Pro Asp	
25 30 35 40	

ccg agt cag aac tcc atc aca ggg gag cac agc cag ctg tta gat gac	256
Pro Ser Gln Asn Ser Ile Thr Gly Glu His Ser Gln Leu Leu Asp Asp	
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Gly His Lys Lys Ala Arg Asn Ala Tyr Xaa Asn Asn Ser Asn Tyr Glu	
60 65 70	

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Glu Gly Asp Glu Tyr Phe Asp Lys Asn Leu Ala Leu Phe Glu Glu Glu	
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Met Asp Thr Arg Pro Lys Val Ser Ser Leu Leu Asn Arg Met Ala Asn	
90 95 100	

tat aca aat ctg aca caa gga gca aag gaa cat gaa gag gca gag aac	448
Tyr Thr Asn Leu Thr Gln Gly Ala Lys Glu His Glu Glu Ala Glu Asn	
105 110 115 120	

atc act gaa ggg aaa aag aag cct acc aag agc ccc caa atg ggt act	496
Ile Thr Glu Gly Lys Lys Lys Pro Thr Lys Ser Pro Gln Met Gly Thr	
125 130 135	

ttc atg ggt gtc tac ctc cca tgt cta cag aac atc ttt gga gtg atc	544
Phe Met Gly Val Tyr Leu Pro Cys Leu Gln Asn Ile Phe Gly Val Ile	
140 145 150	

ctc ttc ctg cgt ctt acc tgg gta gtg gga aca gct gga atc ctt cag	592
Leu Phe Leu Arg Leu Thr Trp Val Val Gly Thr Ala Gly Ile Leu Gln	
155 160 165	

gcc ttt gca att gtc ctc atc tgc tgc tgc tgt aca atg tta act gcc	640
Ala Phe Ala Ile Val Leu Ile Cys Cys Cys Cys Thr Met Leu Thr Ala	
170 175 180	
atc tcc atg agc gcc atc gcc act aac gga gtg gtg cca gct ggg ggc	688
Ile Ser Met Ser Ala Ile Ala Thr Asn Gly Val Val Pro Ala Gly Gly	
185 190 195 200	
tca tac ttc atg att tcc aga gcc ctg ggc cca gag ttt ggc ggg gct	736
Ser Tyr Phe Met Ile Ser Arg Ala Leu Gly Pro Glu Phe Gly Gly Ala	
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Val Gly Leu Cys Phe Tyr Leu Gly Thr Thr Phe Ala Ala Ala Met Tyr	
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Ile Leu Gly Ala Ile Glu Ile Phe Leu Val Tyr Ile Val Pro Arg Ala	
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gcc atc ttt cgg agt gac gat gca ctc aag gag tca gca gct atg ctg	880
Ala Ile Phe Arg Ser Asp Asp Ala Leu Lys Glu Ser Ala Ala Met Leu	
250 255 260	
aac aac atg cgc gtc tat ggt aca gcc ttc ttg gtc ctc atg gtc ttg	928
Asn Asn Met Arg Val Tyr Gly Thr Ala Phe Leu Val Leu Met Val Leu	
265 270 275 280	
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Val Val Phe Ile Gly Val Arg Tyr Val Asn Lys Phe Ala Ser Leu Phe	
285 290 295	
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Leu Ala Cys Val Ile Val Ser Ile Leu Ala Ile Tyr Ala Gly Ala Ile	
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Lys Ser Ser Phe Ala Pro Pro His Phe Pro Val Cys Met Leu Gly Asn	
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Arg Thr Leu Ser Ser Arg His Leu Asp Ile Cys Ser Lys Thr Lys Glu	
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Val Asp Asn Met Thr Val Pro Ser Lys Leu Trp Gly Phe Phe Cys Asn	
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Ser Ser Gln Phe Phe Asn Ala Thr Cys Asp Glu Tyr Phe Val His Asn	
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Thr Glu Asn Leu Trp Ser Asn Tyr Leu Pro Lys Gly Glu Ile Ile Glu	
395 400 405	

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Phe Phe Pro Ser Val Thr Gly Ile Met Ala Gly Ser Asn Arg Ser Gly	
445 450 455	
gat ctg aaa gat gcc cag aag tct att ccc att ggg acc atc ctt gcc	1504
Asp Leu Lys Asp Ala Gln Lys Ser Ile Pro Ile Gly Thr Ile Leu Ala	
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Ile Leu Thr Thr Ser Phe Val Tyr Leu Ser Asn Val Val Leu Phe Gly	
475 480 485	
gca tgt att gaa gga gtc gtt ctc aga gac aaa ttt ggg gat gct gta	1600
Ala Cys Ile Glu Gly Val Val Leu Arg Asp Lys Phe Gly Asp Ala Val	
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aaa ggg aat ttg gtt gta ggc acc tta tcc tgg cca tcc ccg tgg gtg	1648
Lys Gly Asn Leu Val Val Gly Thr Leu Ser Trp Pro Ser Pro Trp Val	
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Ile Val Ile Gly Ser Phe Phe Ser Thr Cys Gly Ala Gly Leu Gln Ser	
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Xaa Thr Gly Ala Pro Arg Leu Leu Gln Ala Ile Ala Lys Asp Asn Ile	
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Ile Pro Phe Leu Arg Val Phe Gly His Ser Lys Ala Asn Gly Glu Pro	
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acc tgg gct tta ctt cta act gct gcc ata gca gag ctg gga att ctc	1840
Thr Trp Ala Leu Leu Leu Thr Ala Ala Ile Ala Glu Leu Gly Ile Leu	
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Ile Ala Ser Leu Asp Leu Val Ala Pro Ile Leu Ser Met Phe Phe Leu	
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Met Cys Tyr Leu Phe Val Asn Leu Ala Cys Ala Leu Gln Thr Leu Leu	
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cga acc ccc aac tgg agg cct cga ttc cgc tat tat cac tgg gcc ctc	1984
Arg Thr Pro Asn Trp Arg Pro Arg Phe Arg Tyr Tyr His Trp Ala Leu	
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Ser Phe Met Gly Met Ser Ile Cys Leu Ala Leu Met Phe Ile Ser Ser	
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Trp Tyr Tyr Ala Ile Val Ala Met Val Ile Ala Gly Met Ile Tyr Lys	
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tac att gaa tat caa ggg gct gag aaa gaa tgg ggg gat ggt atc cgt	2128
Tyr Ile Glu Tyr Gln Gly Ala Glu Lys Glu Trp Gly Asp Gly Ile Arg	
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ggg ctg tgc ctc agt gca gcc cgc ttc gct ttg ctc cgt cta gag gaa	2176
Gly Leu Ser Leu Ser Ala Ala Arg Phe Ala Leu Leu Arg Leu Glu Glu	
685 690 695	
gga cct cct cac act aaa aac tgg agg cct cag ctg ctc gtc cta ctg	2224
Gly Pro Pro His Thr Lys Asn Trp Arg Pro Gln Leu Leu Val Leu Leu	
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Lys Leu Asp Glu Asp Leu His Val Lys His Pro Arg Leu Leu Thr Phe	
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gcc tcc cag ctc aag gca gga aag gga ctc acg att gtg ggc tct gtc	2320
Ala Ser Gln Leu Lys Ala Gly Lys Gly Leu Thr Ile Val Gly Ser Val	
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atc gtg ggg aac ttc ttg gag aac tat ggt gac gcg ctc gcg gca gag	2368
Ile Val Gly Asn Phe Leu Glu Asn Tyr Gly Asp Ala Leu Ala Ala Glu	
745 750 755 760	
cag acc att aag cac cta atg gag gca gaa aag gta aaa gga ttc tgc	2416
Gln Thr Ile Lys His Leu Met Glu Ala Glu Lys Val Lys Gly Phe Cys	
765 770 775	
caa ttg gtg gtg gct gcc aag ctg aaa gag ggc att tca cac ctc atc	2464
Gln Leu Val Val Ala Ala Lys Leu Lys Glu Gly Ile Ser His Leu Ile	
780 785 790	
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Gln Ser Cys Gly Leu Gly Gly Met Lys His Asn Thr Val Val Met Gly	
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Trp Pro Asn Gly Trp Arg Gln Ser Glu Asp Ala Arg Ala Trp Lys Thr	
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Phe Ile Gly Thr Val Arg Val Thr Thr Ala Ala His Leu Ala Leu Leu	
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Val Ala Lys Asn Val Ser Phe Phe Pro Ser Asn Val Glu Gln Phe Ser	
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Glu Gly Asn Ile Asp Val Arg Trp Ile Val His Asp Gly Gly Met Leu	
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Met Leu Leu Pro Phe Leu Leu Lys Gln His Lys Val Trp Arg Lys Cys	
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Glu Val Glu Val Val Glu Met His Asp Ser Asp Ile Ser Ala Tyr Thr	
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Asp Lys Tyr Met Ala Ser Arg Gly Gln Lys Val Lys Ser Met Glu Gly	
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Glu Gly Asp Glu Asn Tyr Met Glu Phe Leu Glu Val Leu Thr Glu Gly	
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 35 40 45
 Glu His Ser Gln Leu Leu Asp Asp Gly His Lys Lys Ala Arg Asn Ala
 50 55 60
 Tyr Xaa Asn Asn Ser Asn Tyr Glu Glu Gly Asp Glu Tyr Phe Asp Lys
 65 70 75 80
 Asn Leu Ala Leu Phe Glu Glu Glu Met Asp Thr Arg Pro Lys Val Ser
 85 90 95

Ser	Leu	Leu	Asn	Arg	Met	Ala	Asn	Tyr	Thr	Asn	Leu	Thr	Gln	Gly	Ala		
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Lys	Glu	His	Glu	Glu	Ala	Glu	Asn	Ile	Thr	Glu	Gly	Lys	Lys	Lys	Pro		
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Thr	Lys	Ser	Pro	Gln	Met	Gly	Thr	Phe	Met	Gly	Val	Tyr	Leu	Pro	Cys		
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Leu	Gln	Asn	Ile	Phe	Gly	Val	Ile	Leu	Phe	Leu	Arg	Leu	Thr	Trp	Val		
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Val	Gly	Thr	Ala	Gly	Ile	Leu	Gln	Ala	Phe	Ala	Ile	Val	Leu	Ile	Cys		
				165					170					175			
Cys	Cys	Cys	Thr	Met	Leu	Thr	Ala	Ile	Ser	Met	Ser	Ala	Ile	Ala	Thr		
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Asn	Gly	Val	Val	Pro	Ala	Gly	Gly	Ser	Tyr	Phe	Met	Ile	Ser	Arg	Ala		
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Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys	Phe	Tyr	Leu	Gly		
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Thr	Thr	Phe	Ala	Ala	Ala	Met	Tyr	Ile	Leu	Gly	Ala	Ile	Glu	Ile	Phe		
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Leu	Val	Tyr	Ile	Val	Pro	Arg	Ala	Ala	Ile	Phe	Arg	Ser	Asp	Asp	Ala		
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Leu	Lys	Glu	Ser	Ala	Ala	Met	Leu	Asn	Asn	Met	Arg	Val	Tyr	Gly	Thr		
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Ala	Phe	Leu	Val	Leu	Met	Val	Leu	Val	Val	Phe	Ile	Gly	Val	Arg	Tyr		
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Val	Asn	Lys	Phe	Ala	Ser	Leu	Phe	Leu	Ala	Cys	Val	Ile	Val	Ser	Ile		
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Asp	Ile	Cys	Ser	Lys	Thr	Lys	Glu	Val	Asp	Asn	Met	Thr	Val	Pro	Ser		
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Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Ile	Ser	Ile	Gln	Gly	Ile		
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Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu	Trp	Ser	Asn	Tyr		
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Leu	Pro	Lys	Gly	Glu	Ile	Ile	Glu	Lys	Pro	Ser	Ala	Lys	Ser	Ser	Asp		
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Val	Leu	Gly	Asn	Leu	Asn	His	Glu	Tyr	Val	Leu	Ala	Asp	Ile	Thr	Thr	420	425	430
Ser	Phe	Thr	Leu	Leu	Val	Gly	Ile	Phe	Phe	Pro	Ser	Val	Thr	Gly	Ile	435	440	445
Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	Ala	Gln	Lys	Ser	450	455	460
Ile	Pro	Ile	Gly	Thr	Ile	Leu	Ala	Ile	Leu	Thr	Thr	Ser	Phe	Val	Tyr	465	470	475
Leu	Ser	Asn	Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	Gly	Val	Val	Leu	485	490	495
Arg	Asp	Lys	Phe	Gly	Asp	Ala	Val	Lys	Gly	Asn	Leu	Val	Val	Gly	Thr	500	505	510
Leu	Ser	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	Phe	Phe	Ser	515	520	525
Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Xaa	Thr	Gly	Ala	Pro	Arg	Leu	Leu	530	535	540
Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	Arg	Val	Phe	Gly	545	550	555
His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	Leu	Thr	Ala	565	570	575
Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	Leu	Val	Ala	580	585	590
Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	Phe	Val	Asn	Leu	595	600	605
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Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	Met	Ser	Ile	Cys	625	630	635
Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	Ile	Val	Ala	Met	645	650	655
Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	Gln	Gly	Ala	Glu	660	665	670
Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Ser	Ala	Ala	Arg	675	680	685
Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	Thr	Lys	Asn	Trp	690	695	700
Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	Asp	Leu	His	Val	705	710	715
Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	Lys	Ala	Gly	Lys	725	730	735

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Gln	His	Lys	Val	Trp	Arg	Lys	Cys	Ser	Ile	Arg	Ile	Phe	Thr	Val	Ala	
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 Pro Gly Asp Gly Asn Pro Lys Glu Ser Ser Pro Phe Ile Asn Ser Thr
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 Ala Glu Asn Asn Glu Gly Gly Lys Lys Lys Pro Val Gln Ala Pro Arg
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gct ggt ggc tcc tac tac atg att tcc agg tct ctg ggc cca gag ttt Ala Gly Gly Ser Tyr Tyr Met Ile Ser Arg Ser Leu Gly Pro Glu Phe 165 170 175	528
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cca gcc atg gcc atc ttc aag gca gaa gat gcc agt ggg gag gca gca Pro Ala Met Ala Ile Phe Lys Ala Glu Asp Ala Ser Gly Glu Ala Ala 210 215 220	672
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Tyr	Tyr	His	Trp	Thr	Leu	Ser	Phe	Leu	Gly	Met	Ser	Leu	Cys	Leu	Ala	
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Leu	Met	Phe	Ile	Cys	Ser	Trp	Tyr	Tyr	Ala	Leu	Val	Ala	Met	Leu	Ile	
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Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Ser	Ala	Ala	Arg	Tyr	Ala	
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ctc	tta	cgc	ctg	gag	gaa	ggg	ccc	cca	cac	acc	aag	aac	tgg	agg	cca	2016
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Gln	Leu	Leu	Val	Leu	Val	Arg	Val	Asp	Gln	Asp	Gln	Asn	Val	Val	His	
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Pro	Gln	Leu	Leu	Ser	Leu	Thr	Ser	Gln	Leu	Lys	Ala	Gly	Lys	Gly	Leu	
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Thr	Ile	Val	Gly	Ser	Val	Leu	Glu	Gly	Thr	Phe	Leu	Glu	Asn	His	Pro	
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Gly	Val	Ser	His	Leu	Ile	Gln	Ser	Gly	Gly	Leu	Gly	Gly	Leu	Gln	His	
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aac	act	gtg	ctt	gtt	ggc	tgg	ccc	cgc	aac	tgg	cgc	cag	aag	gaa	gat	2352
Asn	Thr	Val	Leu	Val	Gly	Trp	Pro	Arg	Asn	Trp	Arg	Gln	Lys	Glu	Asp	
	770					775					780					
cat	cag	acg	tgg	agg	aac	ttc	att	gag	ctg	gtc	cgg	gaa	acc	aca	gct	2400
His	Gln	Thr	Trp	Arg	Asn	Phe	Ile	Glu	Leu	Val	Arg	Glu	Thr	Thr	Ala	
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ggc	cac	tta	gcc	ctg	ctg	gtc	acc	aag	aac	gtt	tcc	atg	ttt	cct	ggg	2448
Gly	His	Leu	Ala	Leu	Leu	Val	Thr	Lys	Asn	Val	Ser	Met	Phe	Pro	Gly	
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aac cct gag cgc ttc tct gag ggc agc atc gac gtt tgg tgg att gtg	2496
Asn Pro Glu Arg Phe Ser Glu Gly Ser Ile Asp Val Trp Trp Ile Val	
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cac gat gga ggc atg ctc atg ctg ctg ccc ttc ctg ctg cgg cac cac	2544
His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Arg His His	
835 840 845	
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Lys Val Trp Arg Lys Cys Lys Met Arg Ile Phe Thr Val Ala Gln Met	
850 855 860	
gat gac aat agc atc cag atg aag aag gat ctg acc aca ttt ctg tat	2640
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cat tta cgc atc act gcg gag gtc gag gtg gtg gag atg cat gag agc	2688
His Leu Arg Ile Thr Ala Glu Val Glu Val Val Glu Met His Glu Ser	
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gac atc tca gct tac acc tat gag aag acg ttg gtg atg gag cag cgt	2736
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Gln Ser Ala Pro Ser Cys Pro Ser Ser Ser Pro Ser Pro Gly Glu Glu	
980 985 990	
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Thr Lys Asp Lys Ser Val Ala Glu Lys Asn Lys Gly Pro Ser Pro Val	
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1075 1080 1085	
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Glu Phe Leu Glu Val Leu Thr Glu His Leu Asp Arg Val Met Leu Val	
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Leu	Gly	Asn	Arg	Thr	Leu	Ser	Arg	His	Gly	Phe	Asp	Val	Cys	Ala	Lys		
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Phe	Cys	Ser	Ser	Arg	Phe	Leu	Asn	Ala	Thr	Cys	Asp	Glu	Tyr	Phe	Thr	325	330	335
Arg	Asn	Asn	Val	Thr	Glu	Ile	Gln	Gly	Ile	Pro	Gly	Ala	Ala	Ser	Gly	340	345	350
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Val	Glu	Arg	Ser	Gly	Met	Thr	Ser	Val	Gly	Leu	Ala	Asp	Gly	Thr	Pro	370	375	380
Ile	Asp	Met	Asp	His	Pro	Tyr	Val	Phe	Ser	Asp	Met	Thr	Ser	Tyr	Phe	385	390	395
Thr	Leu	Leu	Val	Gly	Ile	Tyr	Phe	Pro	Ser	Val	Thr	Gly	Ile	Met	Ala	405	410	415
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Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	Pro	Arg	Leu	Leu	Gln	Ala	500	505	510
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Ala	Val	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	Arg	Pro	Arg	Phe	Arg	580	585	590
Tyr	Tyr	His	Trp	Thr	Leu	Ser	Phe	Leu	Gly	Met	Ser	Leu	Cys	Leu	Ala	595	600	605
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 Met Pro Thr Asn Phe Thr Val Val Pro Val Glu Ala Arg
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 Ala Asp Gly Ala Gly Asp Glu Ala Ala Glu Arg Thr Glu Glu Pro Glu
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 Ser Pro Glu Ser Val Asp Gln Thr Ser Pro Thr Pro Gly Asp Gly Asn
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 Pro Arg Glu Asn Ser Pro Phe Ile Asn Asn Val Glu Val Glu Arg Glu
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 Ser Tyr Phe Glu Gly Lys Asn Met Ala Xaa Phe Glu Glu Glu Met Asp
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 Thr Trp Ile Val Gly Ala Ala Gly Val Met Glu Ser Phe Xaa Ile Val
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 Ala Met Cys Cys Thr Cys Thr Met Leu Thr Ala Ile Ser Met Ser Ala
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 Ile Ala Thr Asn Gly Val Val Pro Ala Gly Gly Ser Tyr Tyr Met Ile
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Pro 610	Arg	Phe	Lys	Phe	Tyr	His 615	Trp	Thr	Leu	Ser	Phe 620	Leu	Gly	Met	Ser
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Ala	Glu	Lys	Glu 660	Trp	Gly	Asp	Gly	Ile 665	Arg	Gly	Leu	Ser	Leu 670	Asn	Ala
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Cys 705	Val	Lys	His	Pro 710	Arg	Leu	Leu	Ser	Phe	Thr 715	Ser	Gln	Leu	Lys	Ala 720
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 Met His Pro Pro
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 Lys Ile Asp Asp Ile Pro Gly Leu Ser Asp Thr Ser Pro Asp Xaa Ser
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 Ser Arg Ser Ser Arg Ser Val Arg Phe Ser Ser Arg Glu Ser Val Pro
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 Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Met Ser Gly Ala Thr Thr
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 Ser Leu Ala Thr Val Ala Leu Asp Pro Pro Ser Asp Arg Thr Ser His
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ccc cag gat gtc atc gag gac ctg agt cag aac tcc atc aca ggg gaa 464
 Pro Gln Asp Val Ile Glu Asp Leu Ser Gln Asn Ser Ile Thr Gly Glu
 85 90 95 100

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 His Ser Gln Leu Leu Asp Asp Gly His Lys Lys Ala Arg Asn Ala Tyr
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 Leu Asn Asn Ser Asn Tyr Glu Glu Gly Asp Glu Tyr Phe Asp Lys Asn
 120 125 130

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 Leu Ala Leu Phe Glu Glu Glu Met Asp Thr Arg Pro Lys Val Ser Ser
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Glu His Glu Glu Ala Glu Asn Ile Thr Glu Gly Lys Lys Lys Pro Thr	
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Lys Thr Pro Gln Met Gly Thr Phe Met Gly Val Tyr Leu Pro Cys Leu	
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Gly Pro Glu Phe Gly Gly Ala Val Gly Leu Cys Phe Tyr Leu Gly Thr	
265 270 275	
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Thr Phe Ala Ala Ala Met Tyr Ile Leu Gly Ala Ile Glu Ile Phe Leu	
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Lys Glu Ser Ala Ala Met Leu Asn Asn Met Arg Val Tyr Gly Thr Ala	
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Phe Leu Val Leu Met Val Leu Val Val Phe Ile Gly Val Arg Tyr Val	
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Ala Ile Tyr Ala Gly Ala Ile Lys Ser Ser Phe Ala Pro Pro His Phe	
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Pro Val Cys Met Leu Gly Asn Arg Thr Leu Ser Ser Arg His Ile Asp	
375 380 385	
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Pro Ile Gly Thr Ile Leu Ala Ile Leu Thr Thr Ser Phe Val Tyr Leu	
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Pro Gln Leu Leu Val Leu Leu Lys Leu Asp Glu Asp Leu His Val Lys	
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His Pro Arg Leu Leu Thr Phe Ala Ser Gln Leu Lys Ala Gly Lys Gly	
775 780 785	
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Xaa Thr Ile Val Gly Ser Val Ile Val Gly Asn Phe Leu Glu Asn Tyr	
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Arg	His	Ile	Asp	Val	Cys	Ser	Lys	Thr	Lys	Glu	Ile	Asn	Asn	Met	Thr	385	390	395	400
Val	Pro	Ser	Lys	Leu	Trp	Gly	Phe	Phe	Cys	Asn	Ser	Ser	Gln	Phe	Phe	405	410	415	
Asn	Ala	Thr	Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Thr	Ser	Ile	420	425	430	
Gln	Gly	Ile	Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu	Trp	435	440	445	
Ser	Asn	Tyr	Leu	Pro	Lys	Gly	Glu	Ile	Ile	Glu	Lys	Pro	Ser	Ala	Lys	450	455	460	
Ser	Ser	Asp	Val	Leu	Gly	Ser	Leu	Asn	His	Glu	Tyr	Val	Leu	Val	Asp	465	470	475	480
Ile	Thr	Thr	Ser	Phe	Thr	Leu	Leu	Val	Gly	Ile	Phe	Phe	Pro	Ser	Val	485	490	495	
Thr	Gly	Ile	Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	Ala	500	505	510	
Gln	Lys	Ser	Ile	Pro	Ile	Gly	Thr	Ile	Leu	Ala	Ile	Leu	Thr	Thr	Ser	515	520	525	
Phe	Val	Tyr	Leu	Ser	Asn	Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	Gly	530	535	540	
Val	Val	Leu	Arg	Asp	Lys	Phe	Gly	Asp	Ala	Val	Lys	Gly	Asn	Leu	Val	545	550	555	560
Val	Gly	Thr	Leu	Ser	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	565	570	575	
Phe	Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	Pro	580	585	590	
Arg	Leu	Leu	Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	Arg	595	600	605	
Val	Phe	Gly	His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	610	615	620	
Leu	Thr	Ala	Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	625	630	635	640
Leu	Val	Ala	Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	Phe	645	650	655	
Val	Asn	Leu	Ala	Cys	Ala	Leu	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	660	665	670	
Arg	Pro	Arg	Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	Met	675	680	685	

Ser	Ile	Cys	Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	Ile	690	695	700
Val	Ala	Met	Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	Gln	705	710	715
Gly	Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Ser	725	730	735
Ala	Ala	Arg	Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	Thr	740	745	750
Lys	Asn	Trp	Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	Asp	755	760	765
Leu	His	Val	Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	Lys	770	775	780
Ala	Gly	Lys	Gly	Xaa	Thr	Ile	Val	Gly	Ser	Val	Ile	Val	Gly	Asn	Phe	785	790	795
Leu	Glu	Asn	Tyr	Gly	Glu	Ala	Leu	Ala	Ala	Glu	Gln	Thr	Ile	Lys	His	805	810	815
Leu	Met	Glu	Ala	Glu	Lys	Val	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	Ala	820	825	830
Ala	Lys	Leu	Arg	Glu	Gly	Ile	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	Leu	835	840	845
Gly	Gly	Met	Lys	His	Asn	Thr	Val	Val	Met	Gly	Trp	Pro	Asn	Gly	Trp	850	855	860
Arg	Gln	Ser	Glu	Asp	Ala	Arg	Ala	Trp	Lys	Thr	Phe	Ile	Gly	Thr	Val	865	870	875
Arg	Val	Thr	Thr	Ala	Ala	His	Leu	Ala	Leu	Leu	Val	Ala	Lys	Asn	Ile	885	890	895
Ser	Phe	Phe	Pro	Ser	Asn	Val	Glu	Gln	Phe	Ser	Glu	Gly	Asn	Ile	Asp	900	905	910
Val	Trp	Trp	Ile	Val	His	Asp	Gly	Gly	Met	Leu	Met	Leu	Leu	Pro	Phe	915	920	925
Leu	Leu	Lys	Gln	His	Lys	Val	Trp	Arg	Lys	Cys	Ser	Ile	Arg	Ile	Phe	930	935	940
Thr	Val	Ala	Gln	Leu	Glu	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	Leu	945	950	955
Ala	Thr	Phe	Leu	Tyr	His	Leu	Arg	Ile	Glu	Ala	Glu	Val	Glu	Val	Val	965	970	975
Glu	Met	His	Asp	Ser	Asp	Ile	Ser	Ala	Tyr	Thr	Tyr	Glu	Arg	Thr	Leu	980	985	990
Met	Met	Glu	Gln	Arg	Ser	Gln	Met	Leu	Arg	His	Met	Arg	Leu	Ser	Lys	995	1000	1005

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<400> 17
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catcaaaaac accgggtggc tttgcataca cctcccccca gccagacctg tggggatttc 180
acctgatacn caacaggtgg ccgggtgtac accttttagc aatctgatcc acgctatagt 240
cgctgataa aggtttgcct gcacgcactt ggcccaacta gaaccctggt gacactcacc 300
agataaagga cttacctcga caggaaactg ggggctgagg ggagggaggc ttcattctgct 360
gccctgagac catggcactg agccttcagc cccggaccag aggggttagc taggtagctc 420
ttcattctga aggaaagaag tcacacaaga ttggcattgt tttgtctttt tgttttttgt 480
ttttttctct cttaaaaaat atattcacct attggtgatg cactttctag gacagtcggc 540
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ttgaattctg agtagaagta ttcttagttg gggctttgtg tgtggtgtga atcaaggtta 600
ttgaaatgtg ttatttttca agttatcttt tgtattgcag tcaaaagtag ctacgctaag 660
aggaagattt tgcgaggttc cccccacttt ttttgttctt aaaaagaaca aa 712

<210> 18
<211> 1014
<212> DNA
<213> mouse

<220>
<221> misc_feature
<222> (525)
<223> n=a, c, g, or t

<400> 18
tagccgccgc ctccagctcc tttgccagga cgagacctct gggaggcagg aatccactct 60
gcttcggcat cctctcgtgg ctctcctctt tctccttctt gtagtgtggg ggtattttcc 120
cgttatgcat gcgcactctt cccaccagac ccaagtggat tatcgacctc aaaaacatcg 180
ggtggctcag cacacacctc ctcccagcca gacctgtggg gtattcacct gatacacaac 240
aggtggctgg tgcacacctt tgcgcaatct gatccacgct cttatacgcc tgataagggg 300
gggcctgcat gctccgtcct cagctagaac cgtgggacac tcggcagata aaggactaac 360
tacctcatcc ggaccttggg gggtgagcag agggaggcgt caccagctgc tgtgagatca 420
tggcacggag cccacagccc tggaccaggg gagatagcta ggattctgaa agaaccaagt 480
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ctggtggggc actttataaa acagctgggt tgaattctat acacggattc ttaattgggc 600
ctttgtgggc tgtaaatcag ggtaattgag ggtttttggg tttttttccc cttctatttt 660
tgcaatcaga agtagctagt gtaggaggaa gagtttttgt gagcttttcc ttttttcttt 720
gtcaaaaagg aaaggggggg gaaaatgcat ccaccagaag ccaccaccaa gatgtcctca 780
gttcggttca tggtgacacc aactaagatt gatgacattc caggtttgtc agacaccagc 840
ccggacctca gctctcggtc tagttctcga gtaagattta gctcccgaga aagtgtgcca 900
gaaacaagcc gtagtgagcc tatgagcgaa ctgtctgggg ctactacttc tctggcaact 960
gttgccctag atccttccag tgaccggact tctaattccc aggatgttac ggag 1014

<210> 19
<211> 744
<212> DNA
<213> mouse

<220>
<221> misc_feature

<222> (574)

<223> n=a, c, g, or t

<400> 19

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catatgcttt gaacttaagc aacaatggaa accgtccttt tgttttctga gttgacatag 120
tgccagtctt cattaaagag ggtagtttgt gaaataaagt gttccctgat ctttctcgtg 180
tgaagtaaaa ggacagatga tgagtaaggt tgagatgatg gaaccagag aagtggcaat 240
aaattaaagg aaacaagtgg gagacacagg gtggacagct cttgatgagc tcacgggctt 300
tagctttctg ccgcctggag aaactgcccc gacagttgga gttctacagg ttaataacaa 360
taagctgggg tggagtgcct aagcctttta agagaatgat aaacagggcg gaaggcgtgt 420
cttcaagcgt cccactccct tggggctatg gtcacgtggg ctcaagtactt cccgattccc 480
agccactgtc tccctaggct gtgctctgag tgtggaggga gagaggcagg gacgcacggg 540
aaggaaatth aaacgctgaa agcaagggtc tgtntgtaag aacaatgccg cacttcaactg 600
tgaccaaggt agaagacca gaggaggggg cagctggccc cctctctcct gagcccagct 660
cagcagaagt aaaagcccgg attcaggatc cccaagaacc aggtaagtcc tgcgcttgta 720
gcgtcggggg acccacagac tagt 744

<210> 20

<211> 52

<212> DNA

<213> Homo sapiens

<400> 20

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<210> 21

<211> 95

<212> DNA

<213> Homo sapiens

<400> 21

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aggagtatga tggcaagaac atggccttgt ttgag 95

<210> 22

<211> 132

<212> DNA

<213> Homo sapiens

<400> 22

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aacctgcccc agggaagtag ggagcatgaa gaggcagaaa acaatgaggg tggaaaaaag 120

aagccggtgc ag

132

<210> 23

<211> 147

<212> DNA

<213> Homo sapiens

<400> 23

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gtcatcctct tcctgcggct cacctgggtg gtgggcattg caggcatcat ggagtccttc 120

tgcattggtg tcatctgctg ctctgt 147

<210> 24

<211> 55

<212> DNA

<213> Homo sapiens

<400> 24

acgatgctca cggccatctc catgagtga attgcaacga atgggtgttg gcctg 55

<210> 25

<211> 131

<212> DNA

<213> Homo sapiens

<400> 25

ctggtggctc ctactacatg atttccaggt ctctgggccc agagtttggg ggtgccgtgg 60

gcctctgctt ctacctgggc actacctttg caggagccat gtacatcctg ggcaccatcg 120

aaatcctgct g 131

<210> 26

<211> 242

<212> DNA

<213> Homo sapiens

<400> 26

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gccatgctga acaacatgcg tgtttacggc acctgtgtgc tcacctgcat ggccactgtg 120

gtgtttgtgg gtgtcaagta tgtcaacaag tttgcccttg tcttcctggg ttgtgtcatc 180

ctctccatcc tggccatcta tgctgggggc atcaagtctg ccttcgaccc acccaacttc 240

cc 242

<210> 27

<211> 212

<212> DNA

<213> Homo sapiens

<400> 27
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ggcttgggaa ggaaatgaga cggtgaccac acggctatgg ggctttttct gtcctctctg 120
cttctcaac gccacctgtg atgaatactt caccgaaac aatgtcacag agatccaggg 180
catccctggg gctgccagtg gcctcatcaa ag 212

<210> 28
<211> 171
<212> DNA
<213> Homo sapiens

<400> 28
agaacctctg gagctcctac ctgaccaagg gcgtgattgt ggagaggagt gggatgacct 60
cgggtgggct ggccgatggc actcctatcg acatggacca cccttatgtc ttcagtata 120
tgacctcta cttcaccctg ctgggtggca tctacttccc ctgagtcaca g 171

<210> 29
<211> 99
<212> DNA
<213> Homo sapiens

<400> 29
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ctggcaccat cctggccatc gccaccacct ctgctgtct 99

<210> 30
<211> 58
<212> DNA
<213> Homo sapiens

<400> 30
acatcagctc cggtgttctg tttggggcct gcattgaggg ggtcgtcctg cgggacaa 58

<210> 31
<211> 175
<212> DNA
<213> Homo sapiens

<400> 31
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ggtaattgtc atcggatcct tcttctccac ctgtggggct gggctgcaga gcctcacggg 120
ggccccacgc ctgctgcagg ccatctcgag ggatggcatt gtgcccttcc tgcag 175

<210> 32
<211> 119
<212> DNA
<213> Homo sapiens

<400> 32
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<210> 33
<211> 99
<212> DNA
<213> Homo sapiens

<400> 33
gttcttcctg atgtgctaca tgtttgtgaa tctggcctgt gcagtgcaga cgctgctgag 60
gacaccaaac tggaggccac gctttcgata ttaccactg 99

<210> 34
<211> 120
<212> DNA
<213> Homo sapiens

<400> 34
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ttatgcactg gtagccatgc tcattgctgg actcatctac aagtacattg agtaccgtgg 120

<210> 35
<211> 105
<212> DNA
<213> Homo sapiens

<400> 35
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cctcttacgc ctggaggaag ggccccca caaccaagaac tggag 105

<210> 36
<211> 169
<212> DNA
<213> Homo sapiens

<400> 36
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gctctcactg acctccagc tgaaggcagg gaagggcctg accatcgtgg gctctgtcct 120
tgagggcacc tttctggaaa atcatccaca ggcccagcgg gcagaagag 169

<210> 37
<211> 196
<212> DNA
<213> Homo sapiens

<400> 37
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tccaacttgc gtgatggcgt gtcccatctg atccagtcg ggggcctcgg ggggctgcag 120
cacaacactg tgcttgttgg ctggccccgc aactggcgcc agaaggaaga tcatcagacg 180
tggaggaact tcattg 196

<210> 38
<211> 170
<212> DNA
<213> Homo sapiens

<400> 38
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tgtttccttg gaaccctgag cgcttctctg agggcagcat cgacgtttgg tggattgtgc 120
acgatggagg catgctcatg ctgctgccct tctgtctgcg gcaccacaag 170

<210> 39
<211> 132
<212> DNA
<213> Homo sapiens

<400> 39
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cagatgaaga aggatctgac cacatttctg tatcatttac gcatcactgc ggaggtcgag 120
gtggtggaga tg 132

<210> 40
<211> 231
<212> DNA
<213> Homo sapiens

<400> 40
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cagatcctca aacagatgca tttaaccaag aatgagcggg agcgggagat ccagagtatc 120
acagatgagt cagcaggctc aatccggaga aagaatccag ccaacacgcg gctccgcctg 180
aacgtcccag aagagacggc tggtgacagt gaagagaagc cagaggagga g 231

<210> 41
<211> 215
<212> DNA
<213> Homo sapiens

<400> 41
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gacaagtcgg tggcagagaa gaataagggc cccagtcttg tctcctctga gggcatcaag 180
gacttcttca gcatgaagcc ggagtgggag aactt 215

<210> 42
<211> 134
<212> DNA
<213> Homo sapiens

<400> 42
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gaaatccccg gacgccaagc ttgttttgc tcaacatgcct gggcctcccc gcaaccgcaa 120
tggtgatgaa aact 134

<210> 43
<211> 92
<212> DNA
<213> Homo sapiens

<400> 43
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gcggccgcga ggtcatcacc atctactcct ga 92

<210> 44
<211> 290
<212> DNA
<213> Homo sapiens

<400> 44
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ccccctctccc ttctcaggtg atggcaaccc caaggaaagc agtcccttca tcaacagcac 120
cgacacagag aagggaaagg agtatgatgg caagaacatg gccttggttg aggtgggctg 180
ctatggctgt tgggccccca cctacaattc attatcctga ttcacagct gctctctccc 240
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<210> 45
<211> 259
<212> DNA
<213> Homo sapiens

<400> 45
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ctcagtggcc tggccaacta caccaacctg cccaggggaa gtagggagca tgaagaggca 180
gaaaacaatg aggggtggaaa aaagaagccg gtgcagggtga ggacctcggg ggatgagaaa 240
tggaagaaaa gggacggat 259

<210> 46
<211> 315
<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (294)

<223> n=a, c, g, or t

<400> 46

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cctgccgtgc ctgcagaaca tctttggcgt catcctcttc ctgcggctca cctgggtggt 180
gggcattgca ggcacatgag agtccttctg catggtgttc atctgctgct cctgtgtgag 240
tgacaccctt cccctcacca cccctgaca gctggggctt ggcagaggcc tggnggggtg 300
gaggtgggag gatgg 315

<210> 47

<211> 249

<212> DNA

<213> Homo sapiens

<400> 47

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cccagccacc gctctgatga tctctttcct cacagacgat gtcacggcc atctccatga 120
gtgcaattgc aacgaatggt gttgtgcctg gtaggtgact ggggctttgt ggggagggag 180
gatggctggg tggaaggagg gatagtgcc tgggcttttg gggacatcaa ggcccaagag 240
agataatat 249

<210> 48

<211> 305

<212> DNA

<213> Homo sapiens

<400> 48

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accctttacg gcagcccagt gccccgacc ctctcgctga taccagattc tccctgcagc 120
tggtggctcc tactacatga tttccaggtc tctgggcccc gagtttgggg gtgccgtggg 180
cctctgcttc tacctgggca ctacctttgc aggagccatg tacatcctgg gcaccatcga 240
aatcctgctg gtaagagagg ctgaggagga ggtgtggaac cccaggttgt cagtcagtta 300
atcag 305

<210> 49

<211> 503

<212> DNA

<213> Homo sapiens

<400> 49
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ttacctcttc ccagccatgg ccatcttcaa ggcagaagat gccagtgggg aggcagcagc 180
catgctgaac aacatgcgtg tttacggcac ctgtgtgctc acctgcatgg cactgtgggt 240
gtttgtgggt gtcaagtatg tcaacaagtt tgccttgctc ttcttgggtt gtgtcatcct 300
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gtgagtgcaa ggaatcgtcc tctacctcc ctggccctgt ttcagagtct ctgccaaact 420
ccccctccct gccctcaga atctcagagt ggtgtgggtt gggagtagct tcccttggga 480
gggaaaatct ctcttagttt ggg 503

<210> 50
<211> 387
<212> DNA
<213> Homo sapiens

<400> 50
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ctacctgacc aagggcgtga ttgtggagag gagtgggatg acctcggtgg gcttggccga 180
tggcactcct atcgacatgg accaccctta tgtcttcagt gatatgacct cctacttcac 240
cctgctgggtt ggcacttact tcccctcagt cacagggtgaa ggggagctca gagaggggaag 300
actctgcctg tgagtggatg gggaagagag agtcgatgat gatgttggga atttcttagt 360
ccaaaaaccc catcatgaaa gcaaccg 387

<210> 51
<211> 313
<212> DNA
<213> Homo sapiens

<400> 51
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tctgggtctcc tgtggccctg gcttgagtc tagctgcact tctgttttgc agggatcatg 120
gctgggttcta accgctctgg ggacctgagg gatgcccaga agtcaatccc cactggcacc 180
atcctggcca tcgccaccac ctctgctgtc tgtatcctgc acagctgtgc tgggaccacc 240
ctcggggggag ggcaagaggg agggcagctg aacttgctgc cttacctgct ggtgcaggaa 300
gggtgggggag ggg 313

<210> 52
<211> 132
<212> DNA
<213> Homo sapiens

<400> 52
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<212> DNA
<213> Homo sapiens

<400> 54
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<213> Homo sapiens

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209

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<213> Homo sapiens

<400> 56
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<210> 57
<211> 272
<212> DNA
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<210> 58
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<212> DNA
<213> Homo sapiens

<400> 58
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<210> 59
<211> 303
<212> DNA

<213> Homo sapiens

<400> 59

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<210> 60

<211> 295

<212> DNA

<213> Homo sapiens

<400> 60

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<210> 61

<211> 400

<212> DNA

<213> Homo sapiens

<400> 61

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<210> 62

<211> 346

<212> DNA

<213> Homo sapiens

<400> 62

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tgtatcctgg aattaaaatt gggggaaaga gggaggtgga cgtcagggaa tctgggtcct 300
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<210> 63
<211> 2733
<212> DNA
<213> Homo sapiens

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<211> 304
<212> DNA
<213> Homo sapiens

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tcaacaatgt cgagggtgaa caagagagct tctttgaagg gaagaacatg gcacttttcg 180

aggtaacttt acttttttaga agaagaaggt gccagggccg ttgctttgat gtggaaaagt 240
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<210> 65
<211> 268
<212> DNA
<213> Homo sapiens

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gttctgccac cctgcccgtg cccgcccagt ccccgcccag tccccgcccc gtgtgtcccc 240
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<210> 66
<211> 180
<212> DNA
<213> Homo sapiens

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caggtaaggg gtgcccgcca gccgcgcccc tgagtcctgt tagaggagtc tgtgttttgc 180

<210> 67
<211> 272
<212> DNA
<213> Homo sapiens

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cacagtctgt ggcaggatgc caaggggccc tg 272

<210> 68
<211> 359
<212> DNA
<213> Homo sapiens

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<210> 69
<211> 378
<212> DNA
<213> Homo sapiens

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<210> 70
<211> 320
<212> DNA
<213> Homo sapiens

<400> 70
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caaggtcttg ctctgtcacc 320

<210> 71
<211> 302
<212> DNA
<213> Homo sapiens

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tg 302

<210> 72
<211> 304
<212> DNA
<213> Homo sapiens

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<210> 73
<211> 263
<212> DNA
<213> Homo sapiens

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<210> 74
<211> 249
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<213> Homo sapiens

<400> 74
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249

<210> 75
<211> 264
<212> DNA
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<210> 76
<211> 290
<212> DNA
<213> Homo sapiens

<400> 76
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<210> 77
<211> 400
<212> DNA
<213> Homo sapiens

<400> 77
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<210> 78
<211> 372

<212> DNA

<213> Homo sapiens

<400> 78

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tcggcatccc ctcaccgtcc cctctgtgtc ctctcagtgt cccctcgtg tccctcgt 360
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<210> 79

<211> 321

<212> DNA

<213> Homo sapiens

<400> 79

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<210> 80

<211> 262

<212> DNA

<213> Homo sapiens

<400> 80

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<210> 81

<211> 318

<212> DNA

<213> Homo sapiens

<400> 81

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<210> 82
<211> 299
<212> DNA
<213> Homo sapiens

<400> 82
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<210> 83
<211> 2168
<212> DNA
<213> Homo sapiens

<400> 83
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<211> 489
<212> DNA
<213> Homo sapiens

<400> 84
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<210> 85
<211> 291
<212> DNA
<213> Homo sapiens

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<210> 86
<211> 299
<212> DNA
<213> Homo sapiens

<400> 86
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<210> 87
<211> 366
<212> DNA
<213> Homo sapiens

<400> 87
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aaaaatttta caagctggat aatttaatgt taaaagaaaa tattgtaact tgttattata 360
gtaaat 366

<210> 88
<211> 342
<212> DNA
<213> Homo sapiens

<400> 88
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ttaaattgctt gagaggtgcc tggaactggt ctgggcacca gc 342

<210> 89
<211> 238
<212> DNA
<213> Homo sapiens

<400> 89
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cgcatgggca ccttcacatg cgtctacctg ccgtgcctgc agaacatcct gggcgatcac 120
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<210> 90
<211> 167
<212> DNA
<213> Homo sapiens

<400> 90
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caaggttgta tttcaagatt tatcagtgtt gactctgtgt ttatgct 167

<210> 91
<211> 359
<212> DNA
<213> Homo sapiens

<400> 91

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<210> 92
<211> 402
<212> DNA
<213> Homo sapiens

<400> 92
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<210> 93
<211> 363
<212> DNA
<213> Homo sapiens

<400> 93
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cct 363

<210> 94
<211> 291
<212> DNA
<213> Homo sapiens

<400> 94

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<210> 95
<211> 250
<212> DNA
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<400> 95
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agatgatcag 250

<210> 96
<211> 205
<212> DNA
<213> Homo sapiens

<400> 96
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ggttgttctc agagacaagt gagtaatgaa tttctttgta acaattatgt gtgtgtctgc 180
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<210> 97
<211> 449
<212> DNA
<213> Homo sapiens

<400> 97
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agccgtgtgt gggacgcatg cccgcggct 449

<210> 98
<211> 304
<212> DNA
<213> Homo sapiens

<400> 98
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ggtc 304

<210> 99
<211> 249
<212> DNA
<213> Homo sapiens

<400> 99
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tatttccat 249

<210> 100
<211> 255
<212> DNA
<213> Homo sapiens

<400> 100
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ggcatgtgcc ttgcaaacat tacttcgaac acccaactgg agaccccgat tccgctacta 180
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aactagaaaa ctagg 255

<210> 101
<211> 251
<212> DNA

<213> Homo sapiens

<400> 101

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tcttcctgggt attatgccat tgtagccatg gtaatagctg gtatgatcta caagtacatt 180
gaataccaag ggtgagtgtg gatttaatct tgatcactgc taaaagtagc aagactagct 240
agtttggtta g 251

<210> 102

<211> 313

<212> DNA

<213> Homo sapiens

<400> 102

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<210> 103

<211> 305

<212> DNA

<213> Homo sapiens

<400> 103

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<210> 104

<211> 323

<212> DNA

<213> Homo sapiens

<400> 104

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<210> 105
<211> 312
<212> DNA
<213> Homo sapiens

<400> 105
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<210> 106
<211> 335
<212> DNA
<213> Homo sapiens

<400> 106
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<211> 235
<212> DNA
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<400> 107
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<210> 108
<211> 335
<212> DNA
<213> Homo sapiens

<400> 108
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<210> 109
<211> 274
<212> DNA
<213> Homo sapiens

<400> 109
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caacgaggtt atagttaaca agtcccatga agcaaagctg gttttattga atatgccagg 180
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<210> 110
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<212> DNA
<213> Homo sapiens

<400> 110
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<211> 3422

<212> DNA

<213> Homo sapiens

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<222>

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<400> 111

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tg 3422

<210> 112
<211> 2290
<212> DNA
<213> *Xenopus laevis*

<220>
<221>
<222>
<223> n=a, c, g, or t

<400> 112
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gttgtggctc agaagttgaa agagggcctt tcacatctta tacagtccctg tggctcttga 180
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gaagacaaca gtattcaaat gaaaaaggac ttggctacct ttctttatca tttacgtatc 540
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cgcacactca tgatggagca gagatcacia atgctgagac aaatgctct ttctaaaaca 660
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 ataatatata aaattactgt atgcaaatac ctcagttttc atgaatgggt tcagagaact 1560
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 aaaaaaaaaa 2290

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<211> 361

<212> PRT

<213> *Xenopus laevis*

<400> 113

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Glu Ser Gln Ala Ala Glu Gln Ala Leu Lys His Leu Met Glu Gln Glu
 20 25 30

Lys Val Lys Gly Phe Cys Gln Val Val Val Ala Gln Lys Leu Lys Glu
 35 40 45

Gly	Leu	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	Leu	Gly	Gly	Met	Arg	His	50	55	60
Asn	Thr	Val	Ile	Met	Ser	Trp	Pro	Ser	Ser	Trp	Arg	Gln	Ser	Asp	Asp	65	70	75
Ser	Arg	Ala	Trp	Lys	Ser	Phe	Ile	Thr	Thr	Ile	Arg	Val	Thr	Thr	Ala	85	90	95
Ala	Arg	Gln	Ala	Leu	Leu	Val	Ala	Lys	Asn	Val	Ser	Phe	Phe	Pro	Gly	100	105	110
Ser	Arg	Glu	Thr	Leu	Ala	Glu	Gly	His	Ile	Asp	Val	Trp	Trp	Ile	Val	115	120	125
His	Asp	Gly	Gly	Met	Leu	Met	Leu	Leu	Pro	Phe	Leu	Leu	Lys	Gln	His	130	135	140
Lys	Val	Trp	Arg	Lys	Cys	Lys	Met	Arg	Ile	Phe	Thr	Val	Ala	Gln	Met	145	150	155
Glu	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	Leu	Ala	Thr	Phe	Leu	Tyr	165	170	175
His	Leu	Arg	Ile	Ala	Ala	Asp	Val	Glu	Val	Val	Glu	Met	His	Asp	Ser	180	185	190
Asp	Ile	Ser	Ala	Tyr	Thr	Tyr	Glu	Arg	Thr	Leu	Met	Met	Glu	Gln	Arg	195	200	205
Ser	Gln	Met	Leu	Arg	Gln	Met	Arg	Leu	Ser	Lys	Thr	Asp	Arg	Glu	Arg	210	215	220
Glu	Ala	Gln	Leu	Val	Lys	Asp	Arg	Asn	Ser	Ile	Leu	Arg	Leu	Thr	Ser	225	230	235
Val	Gly	Ser	Asp	Asp	Asp	Glu	Asp	Thr	Glu	Ala	Ala	Pro	Glu	Arg	Val	245	250	255
His	Met	Thr	Trp	Thr	Arg	Asp	Lys	His	His	Ala	Val	Arg	Val	Ala	Gln	260	265	270
Ser	Lys	Pro	Met	Pro	Ser	Cys	Gln	Asp	Leu	Leu	Asn	Ile	Arg	Pro	Asp	275	280	285
Gln	Ser	Asn	Val	Arg	Arg	Met	His	Thr	Ala	Val	Lys	Leu	Asn	Glu	Val	290	295	300
Ile	Val	Asn	Lys	Ser	His	Asp	Ala	Lys	Leu	Val	Leu	Leu	Asn	Met	Pro	305	310	315
Gly	Pro	Pro	Arg	Asn	Pro	Gln	Gly	Asp	Glu	Asn	Tyr	Met	Glu	Phe	Leu	325	330	335
Glu	Val	Leu	Thr	Glu	Gly	Leu	Glu	Arg	Val	Leu	Val	Val	Arg	Gly	Gly	340	345	350
Gly	Thr	Glu	Val	Ile	Thr	Ile	Tyr	Ser								355	360	

<210> 114
<211> 23
<212> DNA
<213> Homo sapiens

<400> 114
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<210> 115
<211> 23
<212> DNA
<213> Homo sapiens

<400> 115
gtgtcttaaggagacaccacagc 23

<210> 116
<211> 19
<212> PRT
<213> mouse

<400> 116

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1 5 10 15

Asp Glu Tyr

<210> 117
<211> 18
<212> PRT
<213> mouse

<400> 117

Ala Glu Arg Thr Glu Glu Pro Glu Ser Pro Glu Ser Val Asp Gln Thr
1 5 10 15

Ser Pro

<210> 118
<211> 84
<212> DNA
<213> homo sapiens

<400> 118
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gcgtgtgtgt gtgtgtgtgt gtgt 84

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<211> 74
<212> DNA
<213> homo sapiens

<400> 119

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<211> 94
<212> DNA
<213> homo sapiens

<400> 120
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<211> 92
<212> DNA
<213> homo sapiens

<400> 121
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<212> DNA
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<400> 122
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<210> 123
<211> 86
<212> DNA
<213> homo sapiens

<400> 123
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<210> 124
<211> 80
<212> DNA
<213> homo sapiens

<400> 124
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<210> 125
<211> 80
<212> DNA
<213> homo sapiens

<400> 125
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<210> 126
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<212> DNA
<213> homo sapiens

<400> 126
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<210> 127
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<212> DNA
<213> homo sapiens

<400> 127
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<210> 128
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<212> DNA
<213> homo sapiens

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<210> 129
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<212> DNA
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<210> 130
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<212> DNA
<213> mouse

<400> 130

tccagaaccg tggacagcgc c

21

<210> 131
<211> 1530
<212> DNA
<213> mouse

<220>
<221>
<222>
<223> n=a,c, g, or t; sequence "nnnnn" comprises an undetermined number of nucleotides

<400> 131
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cagttctgtc cagcaattct ccagggattt ttgaggactc aagctgggaa ccaggggtgac 180
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